EXHIBIT K

EXHIBIT K

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May 2, 2020

Jake D. Curtis
Burch & Cracchiolo
702 E Osborn Rd Suite 200
Phoenix, AZ 85014

Dear Mr. Curtis

At your request, I am responding to the expert opinion report of Dr. J Michael Powers regarding his opinions on the cause of on Sonia Ortega's death, clinical presentation and whether any therapeutic intervention would have likely altered her clinical course.

I preparation of this response I have reviewed the following documents

1. Dr. J. Michael Powers expert report and response
2. Coconino County medical examiner's report
3. Photo images of the autopsy
4. Photo images of the hotel room
5. Video recording of the hotel check in
6. Police incident reports

Dr. Powers notes that when Ms. Ortega was first encountered on the evening of 11/23/17 she was observed to be staging, had evidence of urinary incontinence, and slurred speech. While the officers concluded she was intoxicated they reported that they did not note an odor of alcohol on her breath. Clearly, the officers recognized that Ms. Ortega's function was sufficiently impaired that she presented a risk to her personal safety, and while they assumed she was intoxicated she denied drinking, and even requested an alcohol breath test. I would argue that at this point the cause of her altered state of function is uncertain enough, that medical evaluation was warranted.

The video of the hotel check-in shows Ms. Ortega is unsteady and that one of the officers is providing contact support (holding her left shoulder) to assist with balance as she leaves the hotel lobby. After escorting her to her room the officers leave. The next morning at approximately 8:30am Ms. Ortega was found deceased by the hotel housekeeping staff.

The patient subsequently underwent a medical examination. I agree with Dr. Powers' description of the autopsy photos and final report by the medical examiner.

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Regarding the etiology of hemorrhage, I agree with Dr. Powers that other etiologies should be considered, but regardless of the cause of hemorrhage, as Dr. Powers notes in his response, Ms. Ortega's death was caused by a repeat hemorrhage that took place after she was left in her hotel room. Considering this fact, I remain of the opinion that Medical intervention soon after her initial encounter with tribal police would have improved her chances of survival.

With regards to the management of patients with spontaneous intracerebral hemorrhage, Dr. Powers sites the negative results of The International Surgical Trial in Intracerebral Hemorrhage (STICH, Medlow, Lancet 2005) as an argument that medical evaluation of this patient would have been futile. However, there are reasons to suspect that the results of this initial trial and a follow-up study (STICH II, Medlow, Lancet 2013) may not be generalizable. In both of these trials, patients initially assigned to conservative management were allowed to crossover to surgery if they deteriorated sufficiently that the investigator believed surgery was necessary. Without these high crossover percentages, the rates of unfavorable outcome and death would have been higher with conservative management. In addition, comatose patients and patients at risk of cerebral herniation were not included. In such cases, surgery may be lifesaving.

In the initial STICH trial 140 (26%) of the 530 patients initially assigned to initial conservative treatment went on to have delayed surgery due to failure of medical therapy, while in STICH II 62 (21%) of the 291 patients assigned to initial conservative treatment crossed over to the surgical arm. In the report of the STICH II results, the authors note that "At the time of the delayed surgery, the patients were in deeper coma with worse neurological deficits than were those in the early surgery group. The crossover to surgery from initial conservative treatment might therefore have rescued these patients from what otherwise might have been a fatal outcome, but because of the intention-to-treat analysis they remained in the initial conservative treatment group."

Despite the above limitations of the two STICH trials, 25% to 40% of the patients had functionally good outcomes at 6 months in the STICH and STICH II studies, respectively, regardless of whether they were managed with early surgery or best medical management. These results reflect the benefits of aggressive early medical or surgical management in this population.

Finally, I would point out that in the JAMA review article cited by Dr. Powers, ( ) the authors note in the section on Neurosurgical Management of IPH that "Urgent neurosurgical consultation is recommended for assessment of hydrocephalus and the possible need for surgical decompression or hematoma evacuation." While they discuss the STICH and STICH II trials, these same authors also state that "patients with sizable hematomas, clinical deterioration, or coma should be considered for craniotomy and/or clot evacuation."

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In summary, it remains my opinion that;

1. There was sufficient uncertainty as to the cause of Ms. Ortega's altered neurologic function on the evening of 11/23/2017 to warrant medical evaluation at a local hospital.
2. Evaluation by an Emergency Room physician would have raised suspicion of stroke, and
3. Based on the results of the STICH and STICH II trials early evaluation and treatment would have been associated with a 25 to 40% chance of survival with functionally good outcome.

Joseph M. Zabramski, MD

May 2, 2020

CITATIONS:

Gross BA, Jankowitz BT, Friedlander RM. Cerebral Intraparenchymal Hemorrhage: A Review. JAMA. 2019 Apr 2;321(13):1295-1303. doi: 10.1001/jama.2019.2413. Review.
Link: https://jamanetwork.com/journals/jama/fullarticle/2729375

Mendelow AD, Gregson BA, Rowan EN, Murray GD, Gholkar A, Mitchell PM, STICH II Investigators.Early surgery versus initial conservative treatment in patients with spontaneous supratentorial lobar intracerebral haematomas (STICH II): a randomised trial. Lancet. 2013 Aug 3;382(9890):397-408. doi: 10.1016/S0140-6736(13)60986-1. Epub 2013 May 29.
Link: https://www.thelancet.com/journals/lancet/article/PIIS0140-6736(13)60986-1/fulltext

Mendelow AD, Gregson BA, Fernandes HM, Murray GD, Teasdale GM, Hope DT, Karimi A, Shaw MD, Barer DH, STICH investigators. Early surgery versus initial conservative treatment in patients with spontaneous supratentorial intracerebral haematomas in the International Surgical Trial in Intracerebral Haemorrhage (STICH): a randomised trial. Lancet. 2005 Jan 29-Feb 4;365(9457):387-97
Link: https://www.ncbi.nlm.nih.gov/pubmed/15680453

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EXHIBIT L

EXHIBIT L

Medical Opinion – Ortega vs. USA
Joseph M. Zabramski, MD
October 24, 2019

I reviewed the following materials:

Medical Records:

Medical Examiner's Report

Toxicology Reports

Imaging:

Video recording of the hotel check in

Photo images from the autopsy

Photo images of the hotel room

Police Incident Report:

COMPLAINT:

RESPONSES TO PLAINTIFFS' INTERROGATORIES

The medical examiner's report and accompanying photographs from that examination demonstrate that Ms. Ortega died secondary to a large spontaneous intracerebral hemorrhage involving the right frontal lobe. There was no evidence of external trauma, and no evidence of any underlying vascular malformation or aneurysm.

The medical examiner's findings and medical history are diagnostic of a spontaneous hypertensive intracerebral hemorrhage.

As a board-certified neurosurgeon, through my education, training and experience, I am familiar with, have cared for, and have operated on patients with spontaneous intracerebral hemorrhages like that suffered by Ms. Ortega.

Based on my experience I am aware of how patients with spontaneous intracerebral hemorrhages present, how they may evolve, and the medical and surgical management that patients with these lesions may require.

The video recorded while Ms. Ortega was checking in at the Kayenta Monument Valley Inn on the night of 11/23/2017 reveals a woman with relatively mild motor and cognitive deficits who was still able to ambulate with minimal assistance. The video is consistent with neurological deficits related to the right frontal lobe hemorrhage.

Hypertension is the most common etiology for spontaneous intracerebral hemorrhage. Ms. Otega had a medical history of hypertension. Spontaneous intracerebral hemorrhages related to hypertension are frequently complicated by episodes of rebleeding. The risk of rebleeding is highest during the first 12 to 24 hours after the initial bleeding episode and is increased in the presence of uncontrolled hypertension. Rebleeding results in enlargement of the hematoma (blood clot) and leads to increasing mass effect (pressure on the surrounding brain), with a progressive loss of neurologic function and level of consciousness. When the hemorrhage reaches the size recorded at autopsy by the medical examiner, neurosurgical management is necessary within hours to prevent death.

It is my opinion that medical examination at the time of the video of Ms. Ortega's check-in on the night of 11/23/17 would have been diagnostic of stroke. Standard medical management of stroke includes control of hypertension and diagnostic imaging with computed tomography (CT) of the head. The presence of a blood clot in the brain on the CT-scan would have resulted in emergency referral to the nearest medical center with neurosurgical coverage (Flagstaff Medical Center). In the case that CT imaging was not immediately available, the diagnosis of stroke would have led to emergency referral to the nearest medical center with CT-imaging (Flagstaff Medical Center).

It is also my opinion that the size of the intracerebral hemorrhage at the time that the check-in video was recorded would have had to have been significantly smaller than that observed at autopsy. At some point in time after the video was recorded the patient suffered a rebleeding episode(s) that lead to a progressive loss of neurologic function and death.

In summary, it is my opinion that medical evaluation and intervention performed at the time of this video would have provided an opportunity for the patient to survive and potentially recover from the hemorrhage.

EXHIBIT M

EXHIBIT M

UNITED STATES DISTRICT COURT

DISTRICT OF ARIZONA

Joshua R. Ortega, Suzanne C. Beattie, and Ralph I. Ortega,	)	
Plaintiffs,	)	
v.	)	CV-19-08110-PCT-JAT
The United States of America,	)	
Defendant.	)	

VIDEOCONFERENCE DEPOSITION OF JOSEPH ZABRAMSKI, MD

Rocky River, Ohio
Wednesday, August 5, 2020
9:29 a.m. (MST)

REPORTED BY:
Kelly M. Olhausen, RPR
Certified Reporter
Certificate No. 50867

PREPARED FOR:
ASCII/COPY

(Certified Copy)

Q. Sure.
A. I reviewed those.
Q. Did you speak with Jake as well?
A. Yes. We spoke on Monday.
Q. Okay. Can I ask for about how long you spoke with him?
A. Probably about 15, 20 minutes.
Q. Okay. And I apologize. I know I have this information somewhere, although I've -- since I'm working from home, I didn't have it readily available.

Can you tell me what your hourly rate is for your expert witness work?
A. $600 an hour.
Q. And that's for everything that you do, including your deposition testimony or trial testimony?
A. That's correct.
Q. So I think we kind of already touched on this. I was going to ask you how often you do work as an expert witness, and it sounds like it's not very frequent.

Is that accurate?
A. Very rarely.
Q. Okay. I'd like to go ahead, then, and jump to your initial report, your October 24, 2019, report. And I'm going to go through and just ask you some questions, mostly to understand how you arrived at your opinions and

to make sure that I'm understanding them.

The first sentence of your report states that "Ms. Ortega died secondary to a large spontaneous intracerebral hemorrhage involving the right frontal lobe." And, in fact, you go on to use the word "spontaneous" three more times. I just want to make sure I understand the significance of that word as you used it.

Am I correct in understanding that the word "spontaneous" means that it was not precipitated by some specific event?

A. That's correct.

Q. And there's no other meaning that you would associate with the term in that?

A. It's also used to -- medically, people understand when you say "spontaneous," that it's not secondary to an AVM or an aneurysm rupture or some sort of a vascular malformation. That would be considered a secondary hemorrhage. So a spontaneous hemorrhage would be one that occurs for no apparent reason.

Q. Okay. Going on, you state that "The video reveals a woman with relatively mild motor and cognitive deficits who is still able to ambulate with minimal assistance. The video is consistent with neurologic deficits related to the right frontal lobe hemorrhage."

Obviously, tell me if I have read anything

incorrectly. I think I'm reading correctly from the report.

A. Yes. I'm looking at it right now. And that's correct.

Q. Can you tell me what specifically are the deficits that you observed in the video that are consistent with neurological deficits from the right frontal lobe?

A. Several things. Number one would be the fact that her left leg seemed to be -- she seemed to be having some trouble with using her left leg.

So, for example, any time she moved -- if you watch the video closely, you'll see that she sort of starts to give out. And, in fact, one of the officers frequently starts to move towards her, but then she seems to catch her balance. And she's standing at the desk again, and she goes to make a little, tiny move. She puts her weight on her foot. It seems like she's going to go down again or may stumble, and the officer starts to move towards her again. So that's what I observed in the videos.

I also observed that she did not seem to be very spontaneous, you know. There was very little interaction with the clerk. And right frontal hemorrhage is often -- causes that type of behavior.

Q. Can you describe for me a little bit more what you mean by that?

A. Well, you know, I didn't see her talking with the clerk. I didn't see her interacting with the clerk. Her movements were very -- seemed to be quite restrictive, you know. She just seemed to be standing there.

Q. But you couldn't see --

A. No. I couldn't see her face or anything --

Q. Right.

A. -- what was going on. But the clerk and the law officers are talking, but she's not interacting with them.

Q. At least from the vantage point that we're --

A. Yeah.

Q. -- that we're given.

A. Yes.

Q. Okay. Are there any other deficits that you observed from the video?

A. No. You know, it's a rather distant video.

Q. Would it be possible that the left leg trouble that you observed could be consistent with intoxication?

A. No. Because it only kept occurring with one leg.

Q. Would it be --

A. You never see her moving during the video and stumbling when she places her right leg. Only when she goes to put weight on her left leg.

Q. Would it be possible -- for that deficit and the right leg trouble that you've described, would it --

A. Left.

Q. -- be possible -- sorry. The left. Thank you. I misspoke -- for the left leg trouble that she described to be consistent with anything else besides the right frontal lobe hemorrhage?

A. Not that I know of. Unless it was some sort of a long-term problem.

Q. Do you think that a layperson could potentially view that and think that it was consistent with intoxication?

MR. CURTIS II: Object to form and foundation.

But you can answer, Dr. Zabramski.

THE WITNESS: Okay. Yes.

So, potentially, someone could confuse that with intoxication. But, you know, I would expect the person to be stumbling on both sides and demonstrate more or less -- you know, I'd expect a little bit more from a law officer than I would from a layperson. A layperson may look at that and say, "Okay. That person keeps stumbling. They might be intoxicated."

BY MS. HEMANN:

Q. If you were looking at the video without the

Q. Okay.

A. And then as I pointed out, I noticed that the patient seemed to be repeatedly having difficulty with her left leg. So -- but I had already read the report that the officers initially thought she was intoxicated.

So I was looking, I guess, for some things. But I didn't expect, you know, to see anything at all from their initial report. But then I -- as I mentioned, I kept seeing this left leg weakness or instability.

Q. So are you -- just so I understand correctly, are you telling me that you did not know the cause of Ms. Ortega's death when you first viewed the video?

A. No. I did.

Q. Okay.

A. I tried to look at it with a -- you know, without a preconception.

Q. I understand.

Would bloodshot eyes be consistent with a cerebral hemorrhage?

A. Not that I know of.

Q. Do you -- did you -- I'm assuming --

A. And you probably couldn't see her eyes on that video.

Q. Fair.

A. Sorry.

rebleeding after an initial bleed progressively decreases as more time passes from the initial bleed?

A. Yes. That seems to be the case.

Q. So -- and the reason I'm asking is I'm wondering how specific you can be with it. In other words, can I -- can you reasonably say that the risk of rebleeding is less four hours after the initial bleed than it is two hours after the initial bleed?

A. I don't believe that that type of, you know, fine documentation is available in the medical literature. What we know is that, what I mention there -- I don't believe I've seen any studies to break it down that closely.

Q. Okay. Can you predict a secondary bleed?

A. Only if you see -- only on, like, a CAT scan. Sometimes you can tell that there is a high risk of recurrent -- a high risk for a recurrent bleed on a CT scan.

Q. What -- I'm sorry. Go ahead.

A. I'm sorry. It would have to be a CT scan performed with contrast. Oftentimes, when we see a hematoma on a basic head CT scan, we do something called a contrast-enhanced CT scan or contrast angiogram -- a CT angiogram to look for, you know, vascular and abnormalities that might have caused the hemorrhage.

understand.

You're saying that -- at least at this point, you don't have any sort of opinion as to whether it was several smaller subsequent bleeds versus one large bleed.

A. Yes. That's correct. I mean, it's unusual to see a hemorrhage go from very small to subtle to as large as we see here, you know.

Q. And can you tell me? What factors do you take into consideration from this case that would make you think that it might not be one large bleed?

A. Just that it seems that it's very unusual in my experience to see a hemorrhage -- a lobar hemorrhage. Remember -- and I think both Dr. Powers and I agreed that this started as a lobar hemorrhage. So very near the surface of the brain. And for it to expand suddenly to this size -- unless it was from a ruptured AVM or a ruptured aneurysm, which was -- the medical examiner did not find, and those findings are usually pretty obvious -- then it would be unusual to expect the hemorrhage to go from a small lobar hemorrhage to a massive hemorrhage of this size.

Q. Okay.

A. And that's just from experience.

Q. Are lobar hemorrhages unusual generally?

A. They're less common than the deeper hypertensive hemorrhages.

Q. Uh-huh.

A. But even hypertensive hemorrhages can occur in the lobar region.

Q. Those are also not very common.

Is that accurate?

A. Well, they're less common. I can't give you an exact number what percentage of hemorrhages are lobar versus which are deep. I think the STICH I study has some statistics on that, and that's why they decided to do STICH II. Because they felt that the patients who had lobar hemorrhages had better outcomes than the patients who had the deep hemorrhages.

Q. You would agree, though, that the hemorrhage, as viewed at the time of autopsy, was a very large hemorrhage.

A. Yes. Absolutely.

Q. Okay. You go on to say that "Medical evaluation and intervention performed at the time of the video," by which you mean the hotel surveillance video, "would have provided an opportunity for the patient to survive and potentially recover."

Can you specify for me what you mean by a "medical evaluation"?

A. An examination by a physician.

Q. And what would that consist -- oh. Go ahead.

A. Just an examination, you know, as Dr. Powers described. A neurological examination. A general physical examination, you know, and a history from the patient. And then a physical examination to include some neurologic testing such as, you know, examining the eyes, performing strength testing, asking the patient to hold their arms up in front of them and close their eyes; touch their nose and then touch your finger back and forth. Some subtle things like that to look for.

And then, of course, also things like obtaining a Glasgow Coma Scale Score so you know where the patient -- functionally where the patient is at the time you're first seeing them, and you document that all in the chart. And then after that, you would -- a medical evaluation would also include laboratory studies and a CT scan.

Q. What laboratory studies?

A. So, for example, there was some question -- I'm sure the police would have raised it with the emergency room physician that the patient might be intoxicated. So they would have done laboratory studies for alcohol and drugs.

Q. Okay.

hemorrhage. It could have been hours.

And the first thing that would be most important when she got to the emergency room would be to have her blood pressure controlled. And then while they were doing that, they would call for the CT scan to be done. So, you know, even if it was -- if her blood pressure was controlled, and even if it was an hour, it would be fine --

Q. Uh-huh.

A. -- you know. And then you would get the scan, and you would know the results.

Q. We don't -- let me ask you this way: Do you have any idea or have any reason to believe when Ms. Ortega's initial bleed began?

A. No. That could have been quite some time before we saw her as well.

Q. Or it could have been very recent?

A. Per her -- you know, per what the officers wrote, the only reason she stopped was because she needed to go to the bathroom. Otherwise, she wouldn't have stopped.

So remember, it's her left foot that was affected. So you drive primarily with your right foot, you know. And so she may not have even noticed that there was any problem until she got out of the car.

Q. Here's -- here's the part in my notes where I was

Q. Just unusual?

A. I think -- yeah. I'd be surprised if Dr. Powers thinks that this all occurred in one fell swoop.

Q. It sounds as though that you have not formed an opinion as to any sort of timeline of when all of this -- how it all played out.

A. I don't think it's at all possible to know. I mean -- you know, she sat down in a chair. She may have fallen asleep. She could have been there for six hours before the hemorrhage occurred. And, you know, I'm not -- I'm not absolutely saying that I don't think it's possible that the hemorrhage occurred all at once. It would just be unusual. It could have been six hours before she had her bleed, you know. I think she was put in the room about 9:00, and she wasn't discovered until nearly 12 hours later. So it might have easily been, you know, sometime during the night. But why -- I don't know one would presume that it occurred immediately.

Q. Would factors such as where she was sitting, the sort of distribution of her belongings in the room -- that would not give you any reason to believe one way or the other?

A. No. You know, as I said, I think she could have fallen asleep. Remember, she does seem to be somewhat impaired --

EXHIBIT N

EXHIBIT N

505-486-7046

User Activity Log

User	Time	Date	Station ID	Action Type	Action Description
LSMITH	10:38	11-24-17	FL6BCZ1.444295870	CHECK OUT	Ortega, Sonia checking out on 11-24-17 having Arr = 11-23-17 Room = 163 Room Type = TDBN
LSMITH	10:10	11-24-17	FL6BCZ1.444295870	MESSAGES	MESSAGE ADDED:PASSED ON IN ROOM
SONIA	21:00	11-23-17	FL6BCZ1.444295870	WAKE UP CALLS RM	All wake up calls moved from room/extn 321 to 163
SONIA	21:00	11-23-17	FL6BCZ1.444295870	UPDATE RESERVATION	ROOM 321 (CL) -> 163 (CL)
SONIA	20:47	11-23-17	FL6BCZ1.444295870	RECORD CREDIT CARD APPROVAL	APPROVED 114.29 USD, FOR PAYMENT TYPE VS , APPROVAL CODE :841859, FOR CONFIRMATION #8130695, FOR Ortega, Sonia IN ROOM 321
SONIA	20:47	11-23-17	FL6BCZ1.444295870	UPDATE RESERVATION	CANCEL DATE 2017-11-22->;CANCEL AMOUNT 114.29->0.00;CANCEL COMMENTS: 24 hour Cancellation->;RESV CANCEL POLICY ID 4399711->
SONIA	20:47	11-23-17	FL6BCZ1.444295870	UPDATE RESERVATION	RESERVATION TYPE CC -> CHECKED IN
SONIA	20:47	11-23-17	FL6BCZ1.444295870	CHECK IN	Ortega, Sonia has checked in Clean room 321 on 11-23-17
SONIA	20:47	11-23-17	FL6BCZ1.444295870	NEW RESERVATION	RESORT = KAYAR CONFIRMATION NO = 8130695 ARR = 2017-11-23 DEP = 2017-11-24 ADULTS = 1 NO. OF ROOMS = 1 ROOMTYPE = TDBN RATE = 96.00 BLOCK CODE = ; RATECODE = WALKIN; PAYMENT METHOD = VS; ; WALKIN; ; CREDIT CARD ATTACHED TO PROFILE ;;NAME -> Ortega;FIRST NAME -> Sonia;CITYCH -> Las Vegas;STATECH -> NV;ADDRESS1CH -> 8005 Hesperides Ave;ZIPCODECH -> 89131;;ADULTS ->1;CHILDREN ->0;CURRENCY CODE ->USD;RATE AMOUNT ->96.00;MARKET CODE ->R;SOURCE CODE ->WI;PERSONS 0->1;RATE CODE ->WALKIN;SHAREAMOUNTORIGINALCH ->96;

Filter From Date To Date
For Activity Group Reservation For Activity Type Cancel
Activity by LSMITH
Sort Order Insert Date Desc

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US-ORTEGA-000020

06-17-025875

EXHIBIT O

EXHIBIT O

KAYENTA
MONUMENT VALLEY INN

KAYENTA MONUMENT VALLEY INN

PO Box 307
Kayenta AZ 86033
United States

Sonia Ortega
8005 Hesperides Ave
Las Vegas NV 89131
United States

Phone:

Arrival Date: 11-23-17

Room: 163 321

Departure Date: 11-24-17

Guests: 1 /0

Company:

Advance Deposit:

Daily Rate: 96.00 USD

Paid By: Visa XXXXXXXXXXXX5304 XX/XX

_____ **Initials**

PLEASE NOTE: Check out time is 12:00

If any of the above information is incorrect or incomplete, please use the section below.

Name: _____ Telephone: _____

Address: _____ City: _____

State/Prov: _____ Zip Code: _____ Country: _____

Vehicle Lic Plate: 4444 NDK Make: CHEV Model: TRAX

This hotel assumes no responsibility for loss of money, jewels, or other valuables, unless placed in our safe deposit boxes located at the Cashier's Desk. We are not responsible for contents left in room or auto. I agree that my liability for this bill is not waived and agree to be held personally liable in the event that the indicated person, company or association fails to pay for any part or the full amount of these charges. Pets are not allowed in guest rooms if evidence of a pet is found in your room a $200 cleaning fee will be charged.

Signature: Sonia Ortega

Enjoy your stay with us!

06-17-635875

EXHIBIT P

EXHIBIT P

KAYENTA

06-17-035831 11/23/2017

☐ Administrative ☐ Gang Related
☑ Investigation ☐ Accident ☐ Arrests Made ☐ Suspects

OFFICER: T 6004 GARRETT MANYGOATS

Incident Report Form

1. Log Number	1a. Incident Number	1b. File Number	1c. Case Number	2. UCR
06-17-035831		CD-17-37179		26 ALL OTHERS EXCEPT TRAFFIC

3. Incident Type	4. Dispatcher	5. Source	6. District	7. Status
8307 EXTRA PATROL - WELFARE CH	RY9283	P	6AA	CLOSED

8. Date Received	8a. Rcvd	8b. Disp	8c. Arrv	8d. Clrd	9. Disposition
11/23/2017	2004	2009	2009	2059	B ASST. RENDERED/NO REPORT

INCIDENT OCCURRED AT OR BETWEEN — 8e. Earliest Date and Time: 11/23/2017 2004 — 8f. Latest Date and Time: 11/23/2017 2059

10. Location	10a. Cross Street	10b. Intersection
0 CHEVRON GAS STATION KAYENTA AZ 86033		☐
	10c. Gang Code	

11. Premise Code	12. Business Name
GAS GAS STATION	

13. Modus Operandi Coding

ENTRY:
EXIT:
METHOD:
VICTIM:
PROPERTY
AREA:
TIME OF DAY:

14. Caller / Complainant Type: N - Normal

15. Involved Persons

STREET ADDRESS	INVOL	DOB	SSN	R	S	PHONE
Arr DATE ARREST# PriCHG DESCRIPTION	*Cnt AddlCHG DESCRIPTION*					*PL Cnt Vd*
ORTEGA, SONIA	DRIVER			W	F	
Hist: ☐						
NELSON, VERNON	POLICE STATION P.O. BOX 2460 KAYENTA AZ 86033	OFF		I	M	
Hist: ☐						
MANYGOATS, GARRETT	PO BOX 2460 KAYENTA AZ 86033	OFF				
Hist: ☐						

16. Involved Vehicles

A/B	PLATE	STATE	PTYPE	INVOL	YEAR	MAKE	MODEL	COLOR	VIN
A	444NDF	NV			2015	CHEV		BLK	

Insurance Company — Policy Number

23. Units / Officers / Times — DIVN — SUPV

Unit Number	Officer / ID (Ofcr1 / Ofcr2)	Officer / ID (Ofcr3 / Ofcr4)
632	GARRETT MANYGOATS T 6004	
630	VERNON A. NELSON T 656	

24. Reviews

ID	NAME	DISP	SENT TO DATE	APV DATE
T 6004	GARRETT MANYGOATS	T 693	11/26/2017 1	☑ 11/26/2017 2

WSIRF-01 06-17-035831 11/23/2017 ☑ APPROVED BY: T 693 ON: 11/26/2017

KAYENTA

06-17-035831 11/23/2017

☐ Administrative ☐ Gang Related

OFFICER: T 6004 GARRETT MANYGOATS

☑ Investigation ☐ Accident ☐ Arrests Made ☐ Suspects

Incident Report Form

26. Comments / Narratives CREATED BY / ON UPDATED BY / ON

WSIRF-01 06-17-035831 11/23/2017 ☑ APPROVED BY: T 693 ON: 11/26/2017

KAYENTA 06-17-035831 11/23/2017

☐ Administrative ☐ Gang Related OFFICER: T 6004 GARRETT MANYGOATS

☑ Investigation ☐ Accident ☐ Arrests Made ☐ Suspects

Incident Report Form

Police Dispatch RY9283 11/23/2017 21:

Input: RY9283 11/23/2017 20:04:11 Edited: RY9283 11/23/2017 20:12:54
KIM THEREIS A LADY WALKIGN ARD CHEVRON BLK JACKET RED SHIRT SHE IS GETTING INTO A SUV AT PUMP 444NDF NV ALIL BLK SUV SHE PEED ON HERSELF LOOKS LIKE SOMETHING IS WRONG W HER LIKE SHE IS DRUNK

Input: RY9283 11/23/2017 20:04:41 Edited: RY9283 11/23/2017 20:04:41
ADVISED 630

Input: RY9283 11/23/2017 20:07:35 Edited: RY9283 11/23/2017 20:08:54
CP 21 BACK ITS AT PUMP 6

Input: RY9283 11/23/2017 20:08:43 Edited: RY9283 11/23/2017 20:08:43
632 BE OUT WITH NV 444NDF NV

Input: RY9283 11/23/2017 20:11:03 Edited: RY9283 11/23/2017 20:11:06
630 10-97

Input: RY9283 11/23/2017 20:14:41 Edited: RY9283 11/23/2017 20:14:52
632 101 NON NATIVE SONIA ORTEGA 1/13/1962

Input: RY9283 11/23/2017 20:16:07 Edited: RY9283 11/23/2017 20:16:13
NEG 29

Input: RY9283 11/23/2017 20:19:09 Edited: RY9283 11/23/2017 20:19:09
630 ALSO 410 INSIDE THE VEHICLE

Input: RY9283 11/23/2017 20:19:38 Edited: RY9283 11/23/2017 20:19:38
630 SEE IF ANY COUNTY IN THE AREA

Input: RY9283 11/23/2017 20:20:28 Edited: RY9283 11/23/2017 20:20:28
NEG NO NAV COUNTY ARD

Input: RY9283 11/23/2017 20:23:34 Edited: RY9283 11/23/2017 20:23:34
630 WHAT ABT DPS

Input: RY9283 11/23/2017 20:29:32 Edited: RY9283 11/23/2017 20:29:38
NO DPS AVAILABLE JUST CALLOUT

Input: RY9283 11/23/2017 20:41:35 Edited: RY9283 11/23/2017 20:41:35
632 BE OUT AT MV INN W 101

Input: RY9283 11/23/2017 20:41:50 Edited: RY9283 11/23/2017 20:41:50
632 B ECHECKIGN INTO A ROOM AND STAYING IN 6A

Input: RY9283 11/23/2017 20:42:59 Edited: RY9283 11/23/2017 20:42:59
630 IM GONNA REPARK THIS CAR AT MV INN

WSIRF-01 **06-17-035831** **11/23/2017** ☑ APPROVED BY: **T 693** ON:**11/26/2017**

KAYENTA 06-17-035831 11/23/2017

☐ Administrative ☐ Gang Related OFFICER: T 6004 GARRETT MANYGOATS

☑ Investigation ☐ Accident ☐ Arrests Made ☐ Suspects

Incident Report Form

Input: RY9283 11/23/2017 20:56:07 Edited: RY9283 11/23/2017 20:56:07
632 10-98 CLEAR FROM MV INN

Input: RY9283 11/23/2017 20:56:27 Edited: RY9283 11/23/2017 20:56:27
630 BE CLEAR

KAYENTA 06-17-035831 11/23/2017

☐ Administrative ☐ Gang Related OFFICER: T 6004 GARRETT MANYGOATS

☑ Investigation ☐ Accident ☐ Arrests Made ☐ Suspects

Incident Report Form

Police Report T 6004 11/26/2017 13: T 656 09/07/2018 05:

SUPPLEMENTAL REPORT: CONTACT MADE WITH SONIA ORTEGA.

On Thursday, November 23, 2017 at approximately 2004 hours, Navajo Nation Police Department in Kayenta, Arizona received a report of an intoxicated female individual at gas pump number 6 at Chevron in Kayenta, Arizona. The vehicle was described to be a black SUV parked at Gas pump number 6. I, Police Officer Garrett Manygoats and Sergeant Vernon Nelson were dispatched to the above location.

Upon arrival at the above locaiton, I observed a female indvidual standing by a black SUV parked at pump number 6. Standing with the female individual was Lt. Kim Fragua. The vehicle was a black Chevy Equinox bearing Nevada License plate 444NDF. Sergeant Vernon Nelson also arrived at location.

I announced my presence and met with the female individual. I identified myself as a Police Officer and asked the female individual for her name. The female individual identified herself as Sonia Ortega with slurred speech. Ortega had red blood shot eyes and was swaying back and forth and side to side. While meeting with Ortega I noticed that she had urinated on herself. I asked Ortega if she was okay. Ortega stated yes. I asked Ortega if she had consumed any alcohol. Ortega stated no. I asked Ortega if she had any medical issues. Ortega stated no. I asked Ortega is she was aware that she had urinated on herself. Ortega answered, " Yes I know Officer, I stopped to use the bathroom but the store was closed and I couldn't hold it."

I than asked Ortega if there was any alcohol inside her vehicle. Ortega stated yes while pointing in the back of the vehicle. I asked Ortega if I could check. Ortega stated yes. In the rear compartment of the vehicle I observed an unopened 18 pack on Michelob Utlra beer and a 12 pack of Corona Beer. I also observed an un opened bottle of Moscato Wine. Inside the rear compartment was an ice chest. Inside the ice chest I observed several cans of Michelob Ultra and a bottle of red wine on ice. I asked Ortega if she was aware that Alcohol was illegal on the Navajo Nation. Ortega stated that she was not aware.

At approximately 2019 hours, Sergeant Nelson instructed Navajo Police Dispatch to check if there was any Navajo County Officers on duty within the area. At approxiamtely 2020 hours, Sergeant Nelson and I were informed by Navajo Police dispatch that there were no Navajo County Officers on duty. At about 2023 hours, Sergeant Nelson requested for Navajo Police Dispatch to check if there was any Arizona State Troopers on duty in the area. Navajo Police Dispatched Informed Sergeant Nelson and I that there were no Arizona State Troopers on duty. Oretga than requested for an Alcohol breath test. There was no portable alcohol breath test available.

Again I asked Ortega if she had any medical issues. Ortega stated no. I asked Ortega if she currently takes any medication. Ortega stated she sometimes takes Hydrocodone for pain. I asked Ortega if she had taken any Hydrocodone or any other medication today. Ortega stated no. Without being asked, Ortega stated "I am fine and I just had to use the bathroom, but the store was closed." I asked Ortega where she was traveling to. Ortega informed me that she was traveling to Bloomfield, New Mexico to visit family members. I asked Ortega where she was traveling from. Ortega stated she was traveling from Las Vegas, Nevada. While at location, Ortega began telling me that her son was a State Trooper in Las Vegas, Nevada.

While meeting with Ortega, Sergeant Nelson informed her that she was not going to be driving her vehicle on the highway. Sergeant Nelson informed Ortega that she had the option to check in to the

KAYENTA 06-17-035831 11/23/2017

☐ Administrative ☐ Gang Related OFFICER: T 6004 GARRETT MANYGOATS

☑ Investigation ☐ Accident ☐ Arrests Made ☐ Suspects

Incident Report Form

Monument Valley Inn next to Chevron in Kayenta, Arizona. Ortega stated she would be booking a room for the night and continue to her destination the following morning. I placed Oretga in my Police vehicle and transported her to the Monument Valley Inn. Sergeant Nelson than parked Ortega's vehicle in the Monument Valley Inn parking lot.

Upon arrival at the Monument Valley Inn, I escorted Ortega to the front desk. Oretga than booked a room with Monument Valley Inn. Sergeant Nelson and I than escorted Ortega to her room. Upon arrival, I opened the door for Ortega. Ortega entered the room while asking "where is the light switch. I check by the entrance but did not observe any light switch. Ortega began walking around in the room and than turned on the lamp beside the bed. Ortega than sat down on a chair. While leaving, Ortega than stated, "Thank you Officer, good night." Before leaving from location, Sergeant Nelson gave the front desk Ortega's vehicle keys.

End of report.

EXHIBIT Q

EXHIBIT Q

KAYENTA

06-17-035875 11/24/2017

☐ Administrative ☐ Gang Related
☑ Investigation ☐ Accident ☐ Arrests Made ☐ Suspects

OFFICER: T 694 KURTIS NASH HALKANI

Incident Report Form

1. Log Number	1a. Incident Number	1b. File Number	1c. Case Number	2. UCR
06-17-035875		CD-17-37225		

3. Incident Type	4. Dispatcher	5. Source	6. District	7. Status
0802 UNATTENDED DEATH	CK2919	P	6AA	CLOSED

8. Date Received	8a. Rcvd	8b. Disp	8c. Arrv	8d. Clrd	9. Disposition
11/24/2017	0947	1003	1106	1216	AA O.D. REPORT MADE

INCIDENT OCCURRED AT OR BETWEEN 8e. Earliest Date and Time: 11/24/2017 0947 8f. Latest Date and Time: 11/24/2017 1216

10. Location	10a. Cross Street	10b. Intersection
0 MONUMENT VALLEY INN KAYENTA AZ 86033		☐
	10c. Gang Code	

11. Premise Code

12. Business Name

13. Modus Operandi Coding

ENTRY:
EXIT:
METHOD:
VICTIM:
PROPERTY
AREA:
TIME OF DAY:

14. Caller / Complainant Type: N - Normal

15. Involved Persons

Arr DATE	ARREST#	PriCHG	DESCRIPTION	STREET ADDRESS	INVOL	Cnt	AddlCHG	DESCRIPTION	DOB	SSN	R	S	PHONE	PL	Cnt	Vd
			ORTEGA, CHRISTOPHER PAUL Hist: ☐	4206 N DUSTIN AVE FARMINGTON NM 87401	BROTH				11/29/1968		W	M	(505) 482-7046			
			SMITH, LAVINA Hist: ☐	0 MONUMENT VALLEY INN MANAGER KAYENTA AZ 86033	CALLER								(928) 697-3221			
			ORTEGA, SONIA Hist: ☐		VIC				1/13/1962		W	F				
			JOHNSON, DOREEN Hist: ☐	SE ADOT POBOX 1102 KAYENTA, AZ KAYENTA AZ 86033	WIT				12/27/1966	585-76-3429	I	F	(928) 697-3221			
			JENSEN, RAYLAN JON Hist: ☐	97 KMHP BOX 2804 KAYENTA, AZ C3318,393 KAYENTA AZ 86033	WIT				1/23/1979	527-89-3582	I	M				
			GREYEYES, TONIA Hist: ☐	0 MV INN FRONT DESK KAYENTA AZ 86033	WIT								(928) 697-3221			

KAYENTA 06-17-035875 11/24/2017

☐ Administrative ☐ Gang Related OFFICER: T 694 KURTIS NASH HALKANI

☑ Investigation ☐ Accident ☐ Arrests Made ☐ Suspects

Incident Report Form

16. Involved Vehicles

A/B	PLATE	STATE	PTYPE	INVOL	YEAR	MAKE	MODEL	COLOR	VIN
A	444NDF	NV		FYI	2015	CHEV		BLK	

Insurance Company Policy Number

23. Units / Officers / Times DIVN SUPV T 693

Unit Number	Officer / ID (Ofcr1 / Ofcr2)	Officer / ID (Ofcr3 / Ofcr4)
623	KURTIS NASH HALKANI T 694	
4164	LAWRENCE GILLIS T 659	
621	LORNA BENALLY T 693	

24. Reviews

ID	NAME	DISP	SENT TO DATE	APV DATE
T 694	KURTIS NASH HALKANI	A	T 693 11/25/2017 1(	☑ 11/25/2017 1'

Report finished need your approval

26. Comments / Narratives CREATED BY / ON UPDATED BY / ON

KAYENTA 06-17-035875 11/24/2017

☐ Administrative ☐ Gang Related OFFICER: T 694 KURTIS NASH HALKANI

☑ Investigation ☐ Accident ☐ Arrests Made ☐ Suspects

Incident Report Form

Police Dispatch CK2919 11/24/2017 12:

Input: CK2919 11/24/2017 09:47:20 Edited: CK2919 11/24/2017 09:49:03
0946 BEN W. MED35 MANGER FRM MV INN PERSON RM163 POSS DECEASED MALE

Input: CK2919 11/24/2017 09:48:07 Edited: CK2919 11/24/2017 09:48:07
621 ADV

Input: CK2919 11/24/2017 09:49:07 Edited: CK2919 11/24/2017 09:49:07
623 ADV

Input: CK2919 11/24/2017 09:51:03 Edited: CK2919 11/24/2017 09:53:37
0949 LAVINA FRM MV IN OFCR BROUGHT IN A FEMALE LAST NIGHT CAR IS OUT HERE, SHE POSS GONE

Input: CK2919 11/24/2017 09:53:29 Edited: CK2919 11/24/2017 09:53:29
21 NAVAJO CO SHERIFF OFC: INFORMED

Input: CK2919 11/24/2017 09:53:32 Edited: CK2919 11/24/2017 09:53:32
623 10-8

Input: CK2919 11/24/2017 09:54:46 Edited: CK2919 11/24/2017 09:55:11
INFORMED 623 / NCSO BE WELL FARE CHK TILL CONFIRMATION

Input: CK2919 11/24/2017 09:55:28 Edited: CK2919 11/24/2017 09:55:28
623 97

Input: CK2919 11/24/2017 09:59:38 Edited: CK2919 11/24/2017 09:59:38
623 101 BROUGT HER BY OFCR ON GRAVEYARD

Input: CK2919 11/24/2017 10:00:00 Edited: CK2919 11/24/2017 10:00:00
623 101 10-7

Input: CK2919 11/24/2017 10:00:37 Edited: CK2919 11/24/2017 10:00:37
623 101 IN OUT OF LAS VEGAS

Input: CK2919 11/24/2017 10:00:50 Edited: CK2919 11/24/2017 10:00:50
21 NCSO: WILL CONTACT ME'S OFC

Input: CK2919 11/24/2017 10:01:14 Edited: CK2919 11/24/2017 10:01:14
623 ADV OF CALL

Input: CK2919 11/24/2017 10:01:19 Edited: CK2919 11/24/2017 10:01:19
623 GET OF CI

Input: CK2919 11/24/2017 10:02:26 Edited: CK2919 11/24/2017 10:02:35
21 CI GILLIS: NO 45

Input: CK2919 11/24/2017 10:11:39 Edited: CK2919 11/24/2017 10:11:46

0921 SEE IF CONTACT W/ MOTHER 6PM / SONYA ORTEGA 702.521.3862 / FRM LAS VEGAS TO BLOOMFIELD NM / VEH 2015 BLK CHEVY CAPTIVA 4 DOOR SUV NV PLATE / LEFT 8AM YESTERDAY / CP JOSH ORTEGA 702.290.9065 /

Input: CK2919 11/24/2017 10:12:00 Edited: CK2919 11/24/2017 10:12:00
INFORMED 623 OF CALL FRM THE VIC SON

Input: CK2919 11/24/2017 10:16:54 Edited: CK2919 11/24/2017 10:17:26
HS SECURITY : 94 /

Input: CK2919 11/24/2017 10:18:25 Edited: CK2919 11/24/2017 10:26:21
1014 SHOW LOW DECEASED FEMALE 480.584.9737 / TRECK PLATERBUCK /

Input: CK2919 11/24/2017 10:18:30 Edited: CK2919 11/24/2017 10:26:24
1016 GILLIS: INFORMED /

Input: CK2919 11/24/2017 10:26:13 Edited: CK2919 11/24/2017 10:26:13
4164 10-8 3306321 272990

Input: CK2919 11/24/2017 10:28:06 Edited: CK2919 11/24/2017 10:28:06
4164 39 ON VALLEY

Input: CK2919 11/24/2017 10:29:26 Edited: CK2919 11/24/2017 10:48:33
NSCO WILL CONTACT VALLEY SET UP RELAY FOR BODY

Input: CK2919 11/24/2017 10:29:47 Edited: CK2919 11/24/2017 10:29:54
623 101 DRIVER BLK CHEV NV 444NDF PARKED IN PARKING LOT NEAR FRONT OFC

Input: CK2919 11/24/2017 10:29:59 Edited: CK2919 11/24/2017 10:29:59
621 OUT W. 623

Input: CK2919 11/24/2017 10:31:32 Edited: CK2919 11/24/2017 10:31:40
1030 JOSH: I CALLED ABT MY MOTHER, I FOUND THAT SHE STAYED AT THE MV INN I CALLED THEM THEY TOLD ME AN OFCR WILL CALL ME BACK

Input: CK2919 11/24/2017 10:40:19 Edited: CK2919 11/24/2017 10:40:41
1038 TRENT AT NAVAJO CO MED OFC: IF WE LET OFCR KNOW GOT VALLEY RIDGE EN ROUTE / 480.584.9737 CLATERBUCK / VALLEY RIDGE IS 19

Input: CK2919 11/24/2017 10:42:10 Edited: CK2919 11/24/2017 10:42:10
623 FAM AT 97

Input: CK2919 11/24/2017 10:42:31 Edited: CK2919 11/24/2017 10:42:31
INFORMED OF CALL FRM NSCO FRM ME'S OFC

Input: CK2919 11/24/2017 10:54:54 Edited: CK2919 11/24/2017 10:56:36
21 60: INFORMED /

Input: CK2919 11/24/2017 10:56:44 Edited: CK2919 11/24/2017 10:56:44

94 TO 60 WILL GIVE A 21

Input: CK2919 11/24/2017 11:06:43 Edited: CK2919 11/24/2017 11:29:27
621 C20/NO RESPONSE

Input: CK2919 11/24/2017 11:06:48 Edited: CK2919 11/24/2017 11:29:33
623 C20/NO RESPONSE

Input: CK2919 11/24/2017 11:07:13 Edited: CK2919 11/24/2017 11:07:13
622 WE'RE ALL C4

Input: CK2919 11/24/2017 11:17:11 Edited: CK2919 11/24/2017 11:17:11
623 LOT #

Input: CK2919 11/24/2017 11:17:37 Edited: CK2919 11/24/2017 11:17:37
35875

Input: CK2919 11/24/2017 11:29:09 Edited: CK2919 11/24/2017 11:29:20
621 10-8 FRM LOCATION

Input: CK2919 11/24/2017 11:35:15 Edited: CK2919 11/24/2017 11:35:21
1132 DONNA FRM VALLEY RIDGE MORTUARY: STILL COMING IN / WHITE SUBURBAN

Input: CK2919 11/24/2017 12:02:36 Edited: CK2919 11/24/2017 12:02:36
623 10-8 FRM 97 RETURNED PERSONAL ITEMS TO BROTHER 23 FOR FAM TO SHOW UP TO PICK UP VEH

Input: CK2919 11/24/2017 12:08:41 Edited: CK2919 11/24/2017 12:08:41
623 BROTHER #

Input: CK2919 11/24/2017 12:09:26 Edited: CK2919 11/24/2017 12:09:57
505.482.704?

Input: CK2919 11/24/2017 12:12:17 Edited: CK2919 11/24/2017 12:12:17
623 TIME OF 101 CHK IN

Input: CK2919 11/24/2017 12:12:18 Edited: CK2919 11/24/2017 12:12:18
2047

KAYENTA 06-17-035875 11/24/2017

☐ Administrative ☐ Gang Related OFFICER: T 694 KURTIS NASH HALKANI

☑ Investigation ☐ Accident ☐ Arrests Made ☐ Suspects

Incident Report Form

Police Report T 694 11/25/2017 9:5 T 693 11/25/2017 11:

On 11/24/2017 at 10:05 AM, Sonia Ortega was pronounced deceased by Doctor Albert Metos of the Kayenta Health Center in Kayenta, Arizona.

At 0946 hours, Emergency Medical Technician (EMT) Brandon Peshlakai telephoned the Kayenta Police District reporting the manager from Monument Valley Inn reporting of a possible deceased male at room 163 in Kayenta, Arizona.

At 0949 hours, I (Police Officer Kurtis Halkani) was assigned to investigate the possible deceased individual.

At 0951 hours, an individual identified as Lavina from Monument Valley Inn in Kayenta, Arizona telephoned to the Kayenta Police District reporting a female that was brought in by police officer last night is possibly gone at Monument Valley Inn room 163 in Kayenta, Arizona.

At 0953 hours, Navajo County Sheriff's Department was notified of the incident.

At 0955 hours, I arrived at the location. I made contact with two Navajo Nation EMTs, Brandon Peshlakai and Gaylen Tracy (Run 55). Brandon stated they checked on the female individual and rigor mortis was almost setting in.

I made contact with a Native American female and male. I made contact with the female first. I asked her for her name. She identified herself as Doreen Johnson and as Assistant Housekeeper. She said at 08:30 AM, she was checking the rooms to see if they were empty to start cleaning them. She said she didn't see a vehicle parked in front of 163, she assumed the occupants had left the room. She said she was checking the room and she noticed the individual in the room was not responsive. She called the Maintenance (Raylan) over to check on the individual.

I made contact with the Native American male. I asked him for his name. He identified himself as Raylan Jensen, Maintenance Supervisor. He said he was told to do a welfare check on the female. He said he was going to check on the individual when he opened the door and "the smell got to him". He said he left the room after he noticed the smell.

I walked in to the room and I observed an individual sitting in the chair with their long hair covering their face. The individual was slumped over the chair arm with their right arm naturally extended towards the ground along the chair and the left arm on the chair arm. The individual was wearing a black jacket with blue jeans and black shoes. I observed there was a yellow colored ring on the carpet with one side of an earring. I observed there was white substance on the ground near the chair. I observed there was a blue colored purse. I checked the individual's right arm and rigor mortis was setting in. The individual was a Caucasian female. I checked her purse for identification. I searched the room and found she didn't sleep in the bed or use the bathroom. I found a wallet in the blue colored purse. I opened the wallet and I found a Nevada driver's license. The female individual was identified as Sonia Ortega with a date of birth of 01/13/62 and an address of 8005 Hesperides Avenue in Las Vegas, Nevada.

At 1001 hours, I requested for the on call Criminal Investigator. Criminal Investigator Lawrence Gillis was dispatched to the location.

At 1018 hours, Criminal investigator Gillis was notified and he responded to the location.

I made contact with Manager Lavina Smith. She said the female has a vehicle parked in the parking lot. She pointed to a Black Chevy SUV with Nevada license plate of 444NDF. She handed me the receipt to Room 163 and the User Activity Log. She informed me the Front Desk Clerk identified as Tonia Greyeyes was writing a statement (see attached statement, receipt and activity log).

At 1042 hours, I made contact with a Caucasian male whom identified himself as Christopher Ortega brother to

Sonia Ortega. I informed him of the deceased female.

I took photographs of the room and vehicle.

At 1126 hours, Sonia was placed in the body bag and transported to Valley Ridge Mortuary in Tuba City, Arizona.

At 1202 hours, Sonia's personal items and vehicle were released to Christopher Ortega (attached Property Record)

Case closed on my behalf. There was no indication of foul play. The victim's body will be sent to OMI in Flagstaff, Arizona.

Navajo County was notified but there was no one available in the area.

Report will be forwarded to the Kayenta Criminal Investigation Section.

NAVAJO DIVISION OF PUBLIC SAFETY
DEPARTMENT OF LAW ENFORCEMENT
REPORT OF MAJOR INCIDENT

OFFENSE:	Unattended Death	CASE NUMBER:	06-17-035875
LOCATION:	Monument Valley Inn Room 163 in Kayenta, Arizona.		
DATE/TIME OF INCIDET:	11/24/2017 Ar 0947 hr	DATE/TIME REPORTED:	11/24/2017 at 0947 hr
REPORTING PERSON:	Lavina Smith	DATE/TIME:	11/24/2017 at 1430hrs

VICTIM(S)	DOB:	CENSUS#	SS#	ADDRESS (PHYSICAL)
Sonia Ortega	01/13/62	unkwn	unknwn	8005 Hesperides Ave in Las Vegas, Nevada.

WITNESS(ES)	DOB:	CENSUS#	SS#	ADDRESS (PHYSICAL)
Raylan Jensen	01/23/79	unknw	xxx-xx-3582	Kayenta Mobile Home Park Space 97 in Kayenta, AZ
Doreen Johnson	12/27/66	unkwn	xxx-xx-3429	Southeast of ADOT yard in Kayenta, Arizona.

SUSPECT(ES)	DOB:	CENSUS#	SS#	ADDRESS (PHYSICAL)

SUMMARY OF INCIDENT: ☐ WEAPON USED ☒ ALCOHOL ☐ INJURY ☐ DRUGS ☒ KILLED ☒ FEDERAL/TRIBAL

On 11/24/2017 at 10:06 A.M., Sonia Ortega was pronounced deceased at Monument Valley Inn at Room 163 in Kayenta, Arizona by Doctor Albert Metos of the Kayenta Health Center in Kayenta, Arizona.

At 9:46 A.M., Emergency Medical Technician Brandon Peshlakai with Med 35 telephoned the Kayenta Police Department reporting they are responding to a possible deceased male at Monument Valley Inn at Room 163 by the Manager in Kayenta, Arizona.

I (Police Officer Kurtis Halkani) was assigned to investigate the deceased person. I made contact with an employee, Doreen Johnson said she was checking rooms when she noticed the individual in Room 163 was unresponsive. She said she asked Rylan Jensen to do a welfare check. I made contact with Raylan Jenson who said he was doing a welfare check on the individual in Room 163, when he smelled the odor of the deceased person and left the room. He contacted the manager, Lavina Smith. I requested for the On Call Criminal Investigator Lawrence Gillis.

According to the front desk clerk, Tonia Greyeyes, the victim, Sonia was brought to the Inn by two police officer, one identified as Officer Vernon Nelson on November 23, 2017 about 9:40 P.M. She stated she checked Sonia in to Room 163. She stated Sonia seemed to be intoxicated. She said the Officers escorted Sonia to the Room. Later Officer Nelson brought Sonia's car keys and told her to give it to Sonia in the following morning.

At 9:54 A.M., Navajo County Sheriff's Office was notified but they said they didn't have anyone available. Valley Ridge Mortuary of Tuba City, Arizona was notified and they came to transport the body.

There was no foul play. Case is pending referred to Kayenta Criminal Investigation Section.

NDPS RADIO DISPATCHER ON DUTY:	Chandra Kinlacheeny			
PATROL OFFICER(S) ASSIGNED:	Kurtis Halkani			
C.I.S. INVESTIGATOR(S) ASSIGNED:	Lawrence Gillis			
NOTIFIED:				
AUSA:		DATE/TIME:		☐ FAX ☐ TELEPHONE
F.B.I.:		DATE/TIME:		☐ FAX ☐ TELEPHONE
HDQ'S:	Window Rock, AZ	DATE/TIME:	11/27/2017 @ 8:00 AM	☒ FAX ☐ TELEPHONE
NEXT OF KIN:	Christopher Ortega	DATE/TIME:	11/24/2017 @ 10:42 AM	☐ FAX ☐ TELEPHONE

INVESTIGATION DISPOSITION: ☐ OPEN ☐ CLOSE ☒ PENDING ☐ UNADDRESS

KURTIS HALKANI; POLICE OFFICER
COMPLETED BY

PHILLIP FRANCISCO
CHIEF OF POLICE

EXHIBIT R

EXHIBIT R

BURCH & CRACCHIOLO, P.A.
702 E. OSBORN ROAD, SUITE 200
PHOENIX, AZ 85014
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Attorneys for Joshua Ortega

UNITED STATES DISTRICT COURT

FOR THE DISTRICT OF ARIZONA

Joshua R. Ortega, individually and on behalf of statutory wrongful death beneficiaries, Plaintiff, v. The United States of America, Defendant.	**Case No. 19-cv-08110-JAT** **PLAINTIFF'S NINTH SUPPLEMENTAL DISCLOSURE STATEMENT** ***(Additions are bolded and italicized)***

Plaintiff Joshua Ortega, by and through counsel undersigned, hereby submits his Fourth Supplemental Disclosure Statement. ***The supplemental information is recited in bold and italicized print for convenient reference.***

A. Instructions to Parties. Please review GENERAL ORDER 17-08.

B. Mandatory Initial Discovery Requests and Answers.

1. State the names and, if known, the addresses and telephone numbers of all persons who you believe are likely to have discoverable information relevant to any party's claims or defenses, and provide a fair description of the nature of the information each such person is believed to possess.

A. Joshua Ortega
c/o Burch & Cracchiolo, P.A.
702 E. Osborn Road, Suite 200
Phoenix, Arizona 85014
602-274-7611

Mr. Ortega is the son of Sonia Ortega. He will testify regarding the nature of his relationship with Sonia, her habit of caring cash, his efforts to locate her in the day prior to her death, and his conversations and interactions with staff at the Monument Valley Inn and the Navajo Tribal Police.

B. Suzanne Beattie
c/o Burch & Cracchiolo, P.A.
702 E. Osborn Road, Suite 200
Phoenix, Arizona 85014
602-274-7611

Ms. Beattie is Sonia Ortega's mother. She will testify regarding the nature of her relationship with Sonia, the impact of Sonia's death on her, and Sonia's habit of carrying cash when she travelled.

C. Ralph Ortega
c/o Burch & Cracchiolo, P.A.
702 E. Osborn Road, Suite 200
Phoenix, Arizona 85014
602-274-7611

Mr. Ortega is Sonia Ortega's father. He will testify regarding the nature of his relationship with Sonia, the impact of her death on him, and Sonia's habit of carrying cash when she travelled.

D. Jennifer Ortega Johnson
c/o Burch & Cracchiolo, P.A.
702 E. Osborn Road, Suite 200
Phoenix, Arizona 85014
602-274-7611

Ms. Johnson is Sonia Ortega's sister. She will testify regarding the nature of her relationship with Sonia and the impact of her death and Sonia's habit of carrying cash when she travelled.

E. Vincent Ortega
c/o Burch & Cracchiolo, P.A.
702 E. Osborn Road, Suite 200
Phoenix, Arizona 85014
602-274-7611

Mr. Ortega is Sonia Ortega's brother. She will testify regarding the nature of her relationship with Sonia and the impact of her death and Sonia's habit of carrying cash when she travelled.

F. Elizabeth Prentiss
c/o Burch & Cracchiolo, P.A.
702 E. Osborn Road, Suite 200
Phoenix, Arizona 85014
602-274-7611

Ms. Prentiss is Sonia Ortega's sister. She will testify regarding the nature of her relationship with Sonia and the impact of her death and Sonia's habit of carrying cash when she travelled.

G. Michele Serna
c/o Burch & Cracchiolo, P.A.
702 E. Osborn Road, Suite 200
Phoenix, Arizona 85014
602-274-7611

Ms. Serna is Sonia Ortega's sister. She will testify regarding the nature of her relationship with Sonia and the impact of her death and Sonia's habit of carrying cash when she travelled.

H. Christopher Ortega
c/o Burch & Cracchiolo, P.A.
702 E. Osborn Road, Suite 200
Phoenix, Arizona 85014
602-274-7611

Mr. Ortega is Sonia Ortega's brother. He will testify regarding the nature of his relationship with Sonia, the impact of her death on him, and Sonia's habit of carrying cash when she travelled. He will also testify regarding his search for Sonia in the hours preceding her death and his discussions with tribal police and staff of the Monument Valley Inn.

I. Tonia Greyeyes
Contact Information Unknown

Ms. Greyeyes was the clerk at the Monument Valley Inn who checked Sonia in. She is expected to testify regarding her interactions with Sonia and the tribal police officers on the night of Sonia's death.

J. Sgt. Vernon Nelson
c/o Lisa M. Hemann
Assistant United States Attorney
Two Renaissance Square
40 North Central Avenue, Suite 1800
Phoenix, AZ 85004-4449

Sgt. Nelson was one of the officers who detained Sonia on the night of her death. He is expected to testify to his interactions with Sonia, any documents he created respecting those interactions, his understanding of police policies and procedures respecting the handling of intoxicated motorists, and any training received respecting same.

K. Officer Garrett Manygoats
c/o Lisa M. Hemann
Assistant United States Attorney
Two Renaissance Square
40 North Central Avenue, Suite 1800
Phoenix, AZ 85004-4449

Officer Manygoats was one of the officers who detained Sonia on the night of her death. He is expected to testify to his interactions with Sonia, any documents he created respecting those interactions, his understanding of police policies and procedures respecting the handling of intoxicated motorists, and any training received respecting same.

L. Officer Kurtis Halkani
c/o Lisa M. Hemann
Assistant United States Attorney
Two Renaissance Square
40 North Central Avenue, Suite 1800

Phoenix, AZ 85004-4449

Officer Halkani investigated Sonia's death. He is expected to testify regarding his observation of Sonia, the scene of her death, and his interactions and communications with other law enforcement officials, medical personnel and hotel staff.

M. Michael Madsen, M.D.
Office of the Medical Examiner
2600 N. Fort Valley Road
Flagstaff, Arizona 86001
928-679-8775

Dr. Madsen is a Coconino County Assistant Medical Examiner. He performed the autopsy on Sonia. He is expected to testify regarding his findings, specifically that Sonia was not intoxicated by alcohol, did not have any pills in her stomach, and died of an intracerebral hemorrhage.

N. Dr. Albert Metos
Kayenta Health Center
P.O. Box 368
Kayenta, Arizona 86033
928-697-4000

Dr. Metos is the doctor at the Kayenta Health Center who pronounced Sonia dead on November 24, 2017. Dr. Metos is expected to testify regarding his observations and findings respecting the state of Sonia's corpse at the time of her death and any conversations he had respecting her death.

O. Employees of Navajo Nation

Although currently unknown, Plaintiffs expect that during the course of discovery additional employees of the Navajo Nation, including police and emergency medical personnel will be identified who have knowledge of Sonia's death.

P. Wanda Begay, RN, CNE
Indian Health Services
Kayenta Health Center
394.3 US-160
Kayenta, AZ 86033

Ms. Begay will testify as to the Kayenta Health Center emergency facility hours of operation, staffing, medical equipment and the availability of a computerized tomography machine (CT scan) at the Kayenta Health Center on November 23, 2017.

2. State the names and, if known, the addresses and telephone numbers of all persons who you believe have given written or recorded statements relevant to any party's claims or defenses. Unless you assert a privilege or work product protection against disclosure under applicable law, attach a copy of each such statement if it is in your possession, custody, or control. If not in your possession, custody, or control, state the name and, if known, the address and telephone number of each person who you believe has custody of a copy.

A. Tonia Greyeyes conversation with Joshua and Christopher Ortega on November 24, 2017. Copy of recording produced herewith.

3. List the documents, electronically stored information ("ESI"), tangible things, land, or other property known to exist,

See attached Document List and CD with listed documents disclosed herewith.

Funeral expenses paid by Ralph Ortega. (ORTEGA000107-111).

4. Invoice from Arizona Department of Public Safety and document entitled Law Enforcement Agreement Between the Navajo Nation and the Arizona Department of Public Safety, DPS Contract # 2017-069, dated June 2017. (AZDPS000001-9.)

5. Complete Coconino County Medical Examiner's Office autopsy file on Sonia Ortega, photographs of the scene, and photographs of the autopsy provided in response to a subpoena duces tecum issued to the Coconino County Medical Examiner's Office (CCME000001-185).

6. Copy of Public Records Request to and Response from Navajo County (NAVCO000001-20).

7. For each of your claims or defenses, state the facts relevant to it and the legal theories upon which it is based.

Facts: Sonia died on November 24, 2017 after being detained by the Navajo Tribal Police on November 23, 2017. Sonia was travelling from her home in Las Vegas, Nevada to visit her family in New Mexico for the Thanksgiving holiday. Her travels brought her through the Navajo Nation Indian reservation.

Navajo tribal police officers responded to a call indicating an intoxicated individual was wandering around a gas station parking lot in Kayenta, Arizona. Upon arrival at the gas station, the tribal police officers spoke with Sonia and searched her vehicle. Without conducting a breathalyzer or field sobriety test, the tribal police officers concluded Sonia was intoxicated. Rather than arresting Sonia, the tribal police officers escorted her to an adjacent hotel and ordered her to check in, leave her car keys with the hotel clerk, and remain at the hotel until the following morning. The tribal police officers then escorted Sonia to the hotel room. No police report was prepared for the tribal police officers' interaction with Sonia on November 23, 2017.

Following a frantic search by her family when Sonia did not arrive in New Mexico as scheduled, she was found dead in the hotel room where tribal police officers had deposited her. The subsequent autopsy concluded that Sonia was not intoxicated but had in fact been suffering from a stroke. The cause of her death was identified as an intracerebral hemorrhage and

traces of alcohol were not found in her system.

Legal Theories: Wrongful death pursuant to Arizona state law. A.R.S. §12-611 *et seq*.

8. Provide a computation of each category of damages claimed by you, and a description of the documents or other evidentiary material on which it is based, including materials bearing on the nature and extent of the injuries suffered.
A. Funeral expenses in the amount of $15,020;
B. Cash in the amount of approximately $500;
C. Loss of companionship, comfort, care, protection, love, affection, and guidance since Sonia's death and in the future; and
D. Plaintiffs' pain, grief, sorrow, anguish, stress, shock and mental suffering already experienced and reasonably probable to be experienced in the future and emotional suffering.

Supporting documents are identified in Section 3, above.

9. Specifically identify and describe any insurance or other agreement under which an insurance business or other person or entity may be liable to satisfy all or part of a possible judgment in the action or to indemnify or reimburse a party for payments made by the party to satisfy the judgment. You may produce a copy of the agreement with your response instead of describing

N/A

10. Expert Opinions

Plaintiff discloses the opinions and qualifications of its experts as follows:

1. Jeffeory G. Hynes, Ed.D. -- Bates Nos. HYNES0001 – 0017;

2. Joseph M. Zabramski, M.D. – Bates Nos. ZAMB0001 – 0003. A thumb drive containing the executed Expert Opinion, Curriculum Vitae, List of Cases and Compensation Statement of Joseph M. Zabramski, M.D. (ZAMB0004-0119.)

3. Sonia Ortega's cell phone call log from November 22, 2017 through November 30, 2017 (ORTEGA000112-113).

4. Sonia Ortega's cell phone text message log from November 20, 2017 through November 25, 2017 (ORTEGA000114-117).

5. Rebuttal Report of Jeffeory G. Hynes, Ed.D. (Bates Nos. HYNES00018-0036).

6. Rebuttal Report of Joseph M. Zabramski, M.D., and three articles in support of Dr. Zabramski's rebuttal report (ZAMB0120-0154).

These documents were emailed to Defendant along with this updated disclosure statement on January 10, 2019.

DATED this 18th day of August, 2020.

BURCH & CRACCHIOLO, P.A.

By _____
John D. Curtis, II
Matthew J. Skelly
702 E. Osborn Road, Suite 200
Phoenix, AZ 85014
Attorneys for Plaintiff

ORIGINAL of the foregoing emailed and mailed this 18th day of August, 2020, to:

Lisa M. Hemann
Assistant United States Attorney
Two Renaissance Square
40 North Central Avenue, Suite 1800
Phoenix, AZ 85004-4449
Lisa.Hemann@usdoj.gov
Attorneys for United States of America

_____

EXHIBIT S

EXHIBIT S

IN THE UNITED STATES DISTRICT COURT
DISTRICT OF ARIZONA

Joshua R. Ortega, Suzanne C. Beattie & Ralph I. Ortega,	:	CV-19-08110-PCT-JAT
Plaintiffs,	:	
vs.	:	
The United States of America,	:	Report of Kenneth R. Wallentine
Defendant.	:	

The following report of Kenneth R. Wallentine is submitted after reviewing the following documents, pleadings, records, and reports:

Amended Complaint

Answer to Amended Complaint

Defendant's responses to Initial and Supplemental Requests for Admissions, Initial and Supplemental Requests for Production, Initial and Supplemental Responses to Interrogatories

Deposition transcripts of Kim Fragua, Garrett Manygoats, Vernon Nelson, Emmett Yazzie, Tonia Greyeyes, with exhibits

Plaintiffs' Initial Mandatory Discovery Responses

Defendant's Initial Mandatory Discovery Responses

Plaintiffs' Tort Claim Notice

Navaho DPS Report 06-17-035875 (initial and supplemental)

Kayenta Monument Valley Inn records

Statement of Tonia Greyeyes

Audio recording of interview of Tonia Greyeyes

Coconino County Medical Examiner Report 17-626

Scene and autopsy photographs

Kayenta Monument Valley Inn front desk video recording

Report of Jeffeory G. Hynes

Navaho DPS GO 79-23

Navaho DPS Personnel Records for Kim Fragua, Garrett Manygoats, Vernon Nelson

Kenneth R. Wallentine states as follows:

1. In the instant matter, I have relied upon the documents, pleadings, records, reports, and statements previously described. I have formed a number of opinions based upon the aforementioned, as well as my experience, education and familiarity with professional standards, practices and publications. I have relied on a variety of professional publications, including, but not limited to, my own publications and court decisions cited therein. I have considered various statements and accounts that may be in conflict one with another and considered factors such as the time at which the statement was made, the interests of the party making the statement, the vantage and view opportunities and perceptive abilities and consistency or inconsistency with the physical evidence, and evidence of any possible impaired cognition and the collective statements of other witnesses. My opinions, and a summary of the circumstances known or reported to me upon which those opinions are based, are set forth herein as follows.

Abbreviated synopsis of reported events:

At 2004, on the evening of November 23, 2017, an off-duty police officer, Navaho Department of Public Safety Lieutenant Kim Fragua, called police dispatch to report a woman who appeared to be intoxicated and to have urinated on her clothing. Lieutenant Fragua saw the woman at the Chevron gas station at the intersection of U.S. Highway 160 and U.S. Highway 163 in Kayenta, Arizona. Lieutenant Fragua reported that there appeared to be something wrong with

her, "like she is drunk." The woman was later identified as Sonia Ortega ("Ortega"). Lieutenant Fragua was off-duty and was at the station to fuel her personal car.

Ortega walked to the rear of the station. Lieutenant Fragua knew there was nothing behind the station other than the trash dumpster, so she drove up to Ortega and spoke with her. Lieutenant Fragua saw that Ortega had apparently wet her pants. As Lieutenant Fragua spoke with Ortega she noted her slurred speech, bloodshot eyes and staggering gait. Though it was cold at that time of night,[1] Ortega was wearing only a small, light jacket. Concerned that Ortega was intoxicated and might drive onto a highway, Lieutenant Fragua called for on-duty officers. Lieutenant Fragua continued to converse with Ortega until the on-duty officers could arrive and speak with her.

Four minutes after Lieutenant Fragua called the dispatcher, Navaho Department of Public Safety Officer Garrett Manygoats arrived at the Chevron station. As Officer Manygoats drove into the Chevron station, he saw Lieutenant Fragua standing near Ortega outside Ortega's vehicle, a black Chevrolet Equinox. Navaho Department of Public Safety Sergeant Vernon Nelson arrived a short time later. Lieutenant Fragua briefly told Sergeant Nelson what she had observed. Then Lieutenant Fragua left and drove home.

Officer Manygoats and Sergeant Nelson spoke with Ortega as they stood near the gas pump. Officer Manygoats observed that Ortega was unsteady on her feet, had red eyes and had urinated in her pants. He asked Ortega whether she had consumed any alcohol or had any alcohol in the car. Ortega told him that she had not drank alcohol, though she did have alcohol in her car. She was apparently not aware of the prohibition of alcohol on the Navaho Nation. Ortega told Officer Manygoats that she occasionally took hydrocodone, but had not taken any that day. He asked her whether she needed any medical attention or an ambulance and Ortega replied that she did not.

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[1] Anyone familiar with the area recognizes that the temperature usually drops quickly after sunset in the winter months. On November 23, 2017, at 8 p.m., the temperatures hovered in the mid-thirties with a low of 27 degrees Fahrenheit, with a light wind which would have produced a wind chill factor.

Ortega explained to Officer Manygoats that she had stopped at the Chevron station because she needed to use the restroom. However, the store was closed and the doors were locked. She told him that she was traveling to Bloomfield, New Mexico, to visit family for the Thanksgiving holiday. Perhaps cognizant that she appeared to be intoxicated, she asked Officer Manygoats to administer a portable breath test. Neither Officer Manygoats nor Sergeant Nelson had a testing device. Sergeant Nelson asked the dispatcher whether there were any Navaho County Sheriff deputies or Arizona Department of Public Safety troopers in the area; none were available.

Sergeant Nelson expressed concerns to Ortega about her ability to safely operate a vehicle. He explained to Ortega that she could get a room at the Monument Valley Inn, just across the parking lot from the Chevron station and continue to Bloomfield on the next morning. Ortega agreed with that option. Sergeant Nelson offered to park Ortega's car for her and she agreed. Even though the hotel was a short distance away, Officer Manygoats offered to drive Ortega to the front desk of the hotel because it was cold and his patrol car had the heater on. Ortega agreed to the short ride.

At the front door of the hotel, Ortega got out of Officer Manygoats' car and walked into the hotel. The hotel clerk, Tonia Greyeyes, observed that Ortega was staggering as she walked into the lobby, as if she was intoxicated. Greyeyes stated Officer Manygoats followed Ortega into the hotel. Ortega was walking unassisted. Ortega gave an expired credit card to Greyeyes. When Greyeyes told Ortega that the card was not valid, Ortega retrieved another credit card from her wallet. Ortega fumbled as she produced the second card. Ortega signed the form. Greyeyes completed the registration and produced a room key. An officer told her that she left her identification and credit card on the counter. Ortega retrieved her documents.

Officer Manygoats and Sergeant Nelson walked with Ortega to the door of her room. Officer Manygoats opened the door for her. He found the light switch and showed Ortega where to activate the lights. Ortega walked to the bedside and turned on a lamp. Ortega sat in a chair,

and said, "thank you, Officers. Good night." Officer Manygoats and Sergeant Nelson closed the door and left the room.

Sergeant Nelson gave Ortega's car keys to Greyeyes. Sergeant Nelson recalls telling Ortega that her keys would be at the front desk.

The following morning, a hotel worker checking which rooms were ready for cleaning discovered Ortega slumped in the chair in her room. She was still clothed and seemed to have not used the bed or the bathroom. Ortega had died during the night. An ambulance was summoned. Navaho Department of Public Safety investigator, Kurtis Halkani, responded to investigate the unattended death. A subsequent medical examination revealed that Ortega had suffered a stroke. Her urine revealed the presence of opiates, specifically hydrocodone and hydromorphone.[2]

Discussion and opinions:

a. **The actions of the Navaho Department of Public Safety officers during the contact with Ortega were consistent with generally accepted police practices.**

1. Officer Manygoats saw an off-duty officer, Lieutenant Fragua, speaking with Ortega outside Ortega's vehicle. From the very beginning of his contact with Ortega, he treated his encounter with her as a "welfare check." Welfare checks are a common police activity as part of the community caretaking role. Police officers' most frequent community caretaker tasks include responding to vehicle accidents, searching for lost children and vulnerable adults, assisting persons who appear to be unable to care for themselves, stopping drivers who may not be aware of an unsafe vehicle condition, and similar tasks. In their community caretaker role, officers typically do not focus on possible criminal liability and do

[2] Ortega had chronic pain and had been prescribed opiates to assist with pain management. There is nothing in the record to suggest that Ortega had unlawfully consumed opiates. The toxicology results were consistent with the drugs lawfully prescribed to her.

not focus on detection or investigation or gathering potential evidence of a crime. Rather, the focus is on determining the welfare of the person(s) they contact. Officer Manygoats focused on Ortega's well-being and not any criminal investigative purpose at the first point of his contact.[3]

2. Lieutenant Fragua called for on-duty officers because she believed that Ortega was "drunk." As he introduced himself to Ortega, Officer Manygoats observed that Ortega had "red eyes" and "had an unsteady stance." He asked Ortega whether she had consumed any alcohol. She told him that she had not. He next inquired whether Ortega was taking any medications. She initially said that she was not taking medications, then corrected herself and said that she used hydrocodone, but had not taken any that day.

3. Officer Manygoats concluded that Ortega appeared to be intoxicated, but not so impaired that she required medical attention. Ortega was able to hold herself up and walk, even though somewhat unsteady. She was able to converse with Officer Manygoats and Sergeant Nelson, and she was able to respond appropriately to their questions. Ortega told Officer Manygoats that she did not need medical attention or an ambulance. She explained to him the circumstance of the locked gas station restroom that led her to urinate on herself. Ortega, apparently recognizing that the officers were concerned about intoxication, asked to take a portable breath test. None was available. A reasonable and well-trained officer observing these facts and circumstances would take community caretaking steps to help Ortega avoid the potential risks to herself and others of driving in her physical condition.

[3] Officer Manygoats did ask Ortega about alcohol in her car. When he learned that she had alcohol, he educated her on the prohibition of alcohol on the Navajo Nation. Neither he nor Sergeant Nelson took any enforcement action related to the alcohol violation.

4. Presented with the facts and circumstances available to Officer Manygoats and Sergeant Nelson, a reasonable and well-trained officer would not have called for medical assistance. Not only did Ortega disclaim any need for medical assistance, neither Officer Manygoats nor Sergeant Nelson observed any physical injuries or objective signs that Ortega needed medical attention.

5. Neither Officer Manygoats nor Sergeant Nelson asked Ortega to perform standard field sobriety tests. A reasonable and well-trained officer would not have exercised discretion to administer field sobriety tests. A primary purpose of administering field sobriety tests is to look for evidence of *driving* under the influence of alcohol or drugs. The officers had not observed a driving violation for which Ortega could be arrested. The Navaho Nation Code (the governing statutes of the sovereign Navaho Nation) does not include a prohibition on public intoxication. Thus, a reasonable and well-trained officer would not have administered field sobriety tests to assess Ortega's level of intoxication.[4]

6. Ms. Ortega was a non-Indian[5] who was on the sovereign lands of the Navajo Nation. Because Ortega was a non-Indian, Officer Manygoats and Sergeant Nelson were limited in their enforcement abilities. Even though the focus of the officers' efforts was clearly in the realm of community caretaking and not criminal law enforcement, a reasonable and well-trained officer would recognize that his or her enforcement and investigative authority was sharply limited by Ortega's non-Indian status.

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[4] Police officers in Arizona are taught that public intoxication is not a criminal act. The State of Arizona does not prohibit public intoxication. *See* Ariz. Rev. Stat. 36-2031.

[5] Officers in Arizona (and in other states in the Four Corners region) are trained to ascertain a person's status as Indian or non-Indian as an element of determining the officers' jurisdiction, particularly when operating in sovereign Indian Country. Officers are trained that membership or "enrollment" in federally-recognized Indian tribes is a prerequisite for a person to be classified as Indian. Nothing in the record that I have reviewed suggests that Ortega could claim Indian status.

7. The officers did not detain Ortega. Consistent with a community caretaking focus, they offered to help her get a hotel room for the night. Officer Manygoats and Sergeant Nelson were concerned about Ortega's ability to safely drive her car. A reasonable and well-trained officer aware of the circumstances would have been similarly concerned. Not only did Ortega appear to be impaired to a degree that she might not be able to safely drive, the only two routes to her intended destination in Bloomfield, New Mexico, are long and lonely stretches of road with few and far between services and residences. There are few places that Ortega could have found roadside assistance or lodging or fuel, food or other services. At that time of night and that season of the year, there could be little, if any, traffic on the eastbound routes of Highway 160 and Highway 163 (and likely even less if she opted to drive on Indian roads). Thus, she might have been stranded on the side of a remote road. A reasonable and well-trained officer would recognize the inadvisability of Ortega driving further on such roads in the cold winter night.

8. As Officer Manygoats and Sergeant Nelson left Ortega's hotel room, Sergeant Nelson told her that her keys would be waiting at the front desk and that she should "just get some sleep and be on your way tomorrow." Ortega replied, "Fine. Okay," and she thanked the officers. Sergeant Nelson left the car keys at the front desk of the hotel with instructions for the clerk to give them to her in the morning.

9. Officer Manygoats' and Sergeant Nelson's actions and words are consistent with those that a reasonable officer would use to communicate to Ortega that she was not under arrest, not being detained or confined, and that they were trying to help her be safe as she traveled. There is no evidence in the record that Ortega was prohibited from driving off that night or confined or detained at the hotel. Nothing in the record suggests that Ortega was even discouraged driving away. To the contrary, Sergeant Nelson testified affirmatively when asked whether "she

could have, in an intoxicated state, gotten in her vehicle and drove away, and as far as you were concerned, that was okay?" and that she was "free to go." Similarly, Sergeant Nelson testified that Ortega was "free to get into her vehicle and drive away" from the gas station and that he would not have stopped her from doing that. Officer Manygoats testified that Ortega was "was free to leave. She wasn't arrested. She wasn't detained."

2. In reaching my opinions in this matter I have relied upon my training and experience in public safety acquired throughout my career. A summary of my qualifications, publications, litigation history and fee schedule are recited herein.

3. **My qualifications as an expert in this subject matter include the following:** I am a law enforcement officer in the State of Utah. I became certified as a law enforcement officer in the State of Utah in 1982. I am the Chief of the West Jordan (Utah) Police Department, where I oversee all police operations and investigations. I am the Chair of the Governing Board of the Officer-Involved Critical Incident Investigations Teams in Salt Lake County, Utah. I was formerly employed with the Utah Attorney General, where I served as the Chief of Law Enforcement. After a period in private practice, I was as a Special Agent with the Utah Attorney General Investigation Division, where I coordinated a statewide use of force training initiative and coordinated officer-involved shooting investigations and other special investigations. I also serve in a consultation role as Senior Legal Advisor for Lexipol, the nation's leading provider of law enforcement risk management resources.

I was formerly employed as a Bureau Chief at the Utah Department of Public Safety, Peace Officer Standards and Training Division, where I supervised investigations into allegations of improper and excessive force, officer integrity, and criminal acts alleged to have been committed by law enforcement officers and supervised in-service training administration and certification for all peace officers in the State of Utah. I also supervised the police service dog

training and certification program for the State of Utah. I had responsibility for policy drafting and review for the parent agency, the Utah Department of Public Safety.

My duties included direct supervision and command of various investigative units and agents throughout the State of Utah, supervising law enforcement officers, forensic specialists, and technicians. I commanded the State of Utah Child Abduction Response Team. I commanded the State of Utah Officer-Involved Fatality Investigation Team. I am a member of the Board of Review of the Utah Technical Assistance Program, consulting in cold case homicide and complex violent person crimes investigations. In 2010, Governor Herbert selected me for the Governor's Leadership in Public Service award for my work in public safety leadership.

4. I was formerly responsible for providing delivery of the Basic Training Curriculum related to all legal subjects, as well as certain tactical subjects, at the Utah Law Enforcement Academy. I continue to teach at the Utah Law Enforcement Academy. I am the author of the police academy curriculum currently in use for several subjects, including, but not limited to, use of force, reasonable force, use of force and police service dog teams, search and seizure, search and seizure for police service dog teams, and use of force/firearms instructor liability. I am a certified POST Firearms Instructor, and often served as the lead instructor for POST Firearms courses. I am certified by the Force Science Research Center as a Force Science Analyst® and an Advanced Force Science Specialist®. I am a former certified TASER® Instructor. I am a certified Excited Delirium and Sudden Death Investigation Instructor. I was certified by the Los Angeles Police Department in Officer-Involved Shooting Investigation. In 2011, I was certified by the Institute for the Prevention of Sudden In-Custody Death as an instructor in restraint systems.

5. I am a licensed attorney, having practiced law since 1990. I am admitted to practice before the United States Supreme Court, the Courts of Appeals for the Fifth and Tenth Circuits, and the State and Federal courts in the State of Utah. I am a Master of the Bench of the American Inns of Court, Inn One, where I also serve as the past-President of the Inn of Court. I serve as an Administrative Law Judge for the State of Utah and for various counties and cities in

Utah, providing hearing officer and appellate hearing services for hearings involving allegations of police officer misconduct for a variety of state agencies and municipalities. I was formerly on the faculty of Excelsior College, teaching Criminal Procedure, Evidence and Management Strategies for Public Safety.

6. In addition to my primary employment, I occasionally consult and provide expert witness opinions on police procedures, and use of force issues. I occasionally perform in-custody death investigations and officer-involved shooting death investigations for agencies which may lack the requisite expertise. I am a consultant to the Utah Risk Management Mutual Association, the state's largest insurer of public safety agencies, on matters of officer conduct and discipline, hiring and screening practices, use of force, and police pursuit policies. I am the co-founder of a best practices advisory group that developed comprehensive model policies and best practices under the authority of the Utah Chiefs of Police Association, the Utah Sheriffs' Association and various state law enforcement agencies. These policies serve as a model for all Utah public safety agencies. I am the author of a number of model policies for law enforcement agencies, and have provided policy drafting and policy review services for several agencies, including policy drafting responsibility for large law enforcement agencies. I have served as a contract consultant to the United States Department of Justice, assigned to provide technical assistance and management consulting to various public safety entities in the United States.

7. I participate and serve in a number of community and professional capacities. Professional activities pertinent to law enforcement include serving as a member of the Board of Directors of the Institute for the Prevention of Sudden In-Custody Death, former member of the Board of Directors of Crisis Intervention Team Utah, Past-President of the Utah Peace Officers Association, former Board Member of the Utah SWAT Association, member of the International Association of Law Enforcement Educators and Trainers Association, member of the International Association of Chiefs of Police and the Utah Chiefs of Police Association, member of the National Tactical Officers Association, member of the International Association of Law Enforcement Firearms Instructors, member of the International Association of Directors of Law

Enforcement Standards and Training, member of the International Law Enforcement Educators and Trainers Association, member of the K9 Section of the Utah Peace Officers Association, member of the United States Police Canine Association, past member of the board of directors of the NAACP, Salt Lake City branch, and board member and co-Chairman of the Utah Law Enforcement Legislative Committee. I formerly served as a gubernatorial appointee to the Council on Peace Officer Standards and Training. I am a former member of the Scientific Working Group on Dog and Orthogonal Detector Guidelines, a national scientific best practices organization sponsored by the Federal Bureau of Investigation, the Department of Homeland Security, and the Transportation Security Administration, with support coordinated by the International Forensic Research Institute at Florida International University. I have been a presenter at a variety of professional conferences and seminars, including presenting on use of force training at the annual convention of the International Association of Chiefs of Police and the International Conference of the Institute for the Prevention of Sudden In-Custody Death.

8. From 1994 to 2014, I was a consultant with the K9 Academy for Law Enforcement and the International Police Canine Conference. My principal responsibilities included providing use of force training, civil liability instruction, and search and seizure instruction. I have provided police service dog training and certification standards consultation for two police service dog organizations, including a western regional group and one of the major national groups. I serve as a consultant for the California Narcotic and Explosive Canine Association and have been a featured lecturer at their annual training conference over the past decade.

9. I am a Senior Legal Advisor for Lexipol. In that capacity, I have assisted in the drafting and review of use of force and other policies in current use by more than 3,300 public safety agencies in the United States.

10. **My publications (limited to ten years) include the following:** I have previously published a number of other professional articles, many of which have been subjected to peer review. My most recent book, *The K9 Officer's Legal Handbook*, 3rd ed., was published in February 2019. Another book, *Street Legal: A Guide to Pre-trial Criminal Procedure for Police,*

Prosecutors, and Defenders was published in 2007 by the American Bar Association Publishing Division, with a 2020 edition pending publication. It is a treatise on public safety and criminal procedure. My other published works include: *Mitigating Suicide Threat Response Risks*, Police Chief, V. 86, No. 3 (2019); *Avoiding a Peer Support Pitfall*, Police Chief, V. 85, No. 3 (2018); *Should I Stay or Should I Go?*, POLICE, October 2017, *Hill v. Miracle: Adapting the Graham Standard to Non-Criminal Interventions*, Police Chief (August 2017): 18–19; *Armstrong v. Village of Pinehurst: Training and Policy Implications for Police*, Police Chief, V. 83, No. 6 (2016); *Supreme Court Decision Casts Doubt on Hotel Registry Ordinances*, Police Chief, V. 81, No. 10 (2015); *Body Worn Cameras: Plan Before Your Office Buys In*, The Sheriff (June 2015); *Legal Risks of Failing to Care for Children of Arrested Persons*, Police Chief, V. 81, No. 10 (2014); *A Rational Foundation for Use of Force Policy, Training and Assessment*, 2014 (2) AELE Mo. L. J. 101; *Post Incident Video Review*, Police Chief, V. 68, No. 12 (2011); *Cell Site Location Evidence: A New Frontier in Cyber-Investigation*, 2011 (2) AELE Mo. L. J. 501, *Prospects, Pitfalls and Pains of Social Media and Public Safety*, The Municipal Lawyer, September 2010; *Police Department May Read Text Messages Sent on Agency-issued Pagers: City of Ontario, California v. Quon*, Police Chief, V. 57, No. 8 (2010); *Collection of DNA Upon Arrest: Expanding Investigative Frontiers*, Police Chief, V. 57, No. 1 (2010); *Targeting TASER: The New TASER Aim Points,* Law Officer, January 2010.

11. **My fee schedule is established as follows:** I charge $250.00 per hour for examination of reports and documents, site visits, interviews, administrative tribunal, deposition or court testimony, with a minimum of $1,000.00 for deposition or court testimony. I bill for actual travel expenses and a travel fee of $1,000.00 per day/part-day for travel to western states and $1,500.00 per day/part-day outside western states.

12. **My prior experience as an expert witness (limited to the past four years) includes the following cases:** I have been qualified as an expert in the subject matter of police procedures, including use of TASER® devices, police use of force, shootings and wrongful death claims, search and seizure, police service dog use, both in drug detection and dog bites, and I

have never had a court decline to find that I am a qualified expert witness. I have testified and/or provided depositions and trial testimony in the following cases which may be generally related to the subject of the instant litigation in the past four years: *Peralta v. Arizona Department of Public Safety*, No. CV-17-01868-DJH-BSB, United States District Court for the District of Arizona, 2020. Trial testimony given on behalf of defendant. Subject matter: police custody. *Krakana & Zinn v. City of Scottsdale*, No. CV-17-01813-PHX-JJT, United States District Court for the District of Arizona, 2020. Trial testimony given on behalf of defendant. Subject matter: police tactical operation. *Smith v. City of Waterloo*, Case No. LACV133172, District Court for Black Hawk County, Iowa, 2019. Trial testimony given on behalf of defendants. Subject matter: emergency vehicle operation. *Mould v. City of Tempe*, No. CV2016-018161, United States District Court for the District of Arizona, 2019. Trial and deposition testimony given on behalf of defendant. Subject matter: wrongful death. *Castro v. State of Arizona*, Case No. 2:18-cv-00753-SRB, United States District Court for the District of Arizona, 2019. Deposition testimony given on behalf of defendants. Subject matter: police use of force. *Lawrence v. Las Vegas Metro Police Department*, No. 2:16-cv-03039-JCM-NJK, United States District Court for the District of Nevada, 2019, Deposition testimony given on behalf of defendants. Subject matter: wrongful death. *Webb v. City of Waterloo*, No. 6:17-cv-2001-CJW-MAR, United States District Court for the Northern District of Iowa. Deposition testimony given on behalf of defendants. Subject matter: police use of force. *Charboneneau v. Demings*, No. 2017-CA-010862-O, Ninth Judicial District Court, Orange County, Florida, 2019. Hearing testimony given on behalf of defendants. Subject matter: use of force. *Carsons v. Black Bear Reserve Homeowners Association, Inc., et al.*, No. 35-2015-CA-001910, Fifth Judicial District Court, Lake County, Florida, 2018. Deposition testimony given on behalf of defendants. Subject matter: investigative procedures. *McSwain v. United States*, No. 2:15-cv-01321, United States District Court for the District of Nevada, 2018. Trial testimony given on behalf of defendant. Subject matter: negligence. *Rodriguez v. City of West Covina*, No. 2:17-CV-0138 CBM, United States District Court for the Central District of California, 2018. Deposition testimony given on

behalf of defendant. Subject matter: police canines. *Mims v. City of Charlotte*, No. 2014-CVS-23815, Superior Court of North Carolina, 2018. Trial and deposition testimony given on behalf of the defendants. Subject matter: wrongful death. *Chastang v. Levy*, No. 6:17-ev-00538-0r1-37 DCI, United States District Court for the Middle District of Florida, 2018. Deposition testimony given on behalf of defendant. Subject matter: police defensive deadly force. *Johnson v. Peay*, No. 160700949, Second District Court, State of Utah, 2017. Trial testimony given on behalf of defendant. Subject matter: police force to effect arrest. *Brunette v. Burlington*, No. 2:15-cv-61, United States District Court for the District of Vermont, 2017. Deposition testimony given on behalf of defendant. Subject matter: wrongful death. *Landon v. City of North Port*, No. 8:15-cv-02272-CEH-JSS, United States District Court for the Middle District of Florida, 2017. Deposition testimony given on behalf of defendant. Subject matter: police force to effect arrest. *Christiansen v. West Valley City, et al.*, No. 2:14-cv-00025, United States District Court for the District of Utah, 2016. Trial testimony given on behalf of defendants. Subject matter: police force to effect arrest. *State v. Barney*, No. 161300117, Fourth District Court, State of Utah, 2016. Trial testimony given on behalf of the prosecution. Subject matter: use of force. *United States v. Jereb*, No. 2:15-mj-00356, United States District Court for Utah, 2016. Trial testimony given on behalf of the prosecution. Subject matter: use of an electronic control device. *Talley v. City of Charlotte*, No. No. 3:14 CV 683, United States District Court for the Western District of North Carolina, 2016. Deposition testimony given on behalf of the defendants. Subject matter: negligent custody. *Gonzales v. Douglas*, No. CV-15-00064-PHX-NVW, United States District Court for the District of Arizona, 2016. Deposition testimony given on behalf of defendant. Subject matter: police force to effect arrest. *McDonald v. Dupnik*, No. C20142895 Superior Court, State of Arizona, Pima County, 2016. Trial and deposition testimony given on behalf of defendants. Subject matter: police force to effect arrest.

The observations and opinions stated herein are preliminary, insofar as additional information may be provided to me through the course of discovery and other incidents of the

litigation process. They are based on the best information presently known to me. I have assumed the general accuracy of the documents, statements, and reports, excepting those expressed as opinions and those conflicting one with another and/or conflicting with physical evidence, that were provided to me. The opinions herein may be supplemented and/or revised upon receipt of additional information, including, but not limited to, further deposition testimony, consideration of any report submitted by plaintiff's experts, further investigation and/or further witness interviews. I may supplement this report upon completion of depositions of witnesses in this matter and/or upon being provided with other investigative documents, and/or diagrams, video and photographs.

My trial testimony may be supported by exhibits that include the pleadings, documents, statements, depositions, diagrams, photographs, and reports listed herein, as well as illustrative evidence such as a visual presentation of computer-generated slides and visual images projected onto a screen, charts, graphs, or illustrations created to better illustrate the aforementioned documents.

CONCLUSION

Sonia Ortega's unexpected death was tragic. The brief encounter between Ortega and Officer Manygoats and Sergeant Nelson was focused, not on any criminal investigative or law enforcement objective, but to provide an opportunity for Ortega to have a safe place to rest in her apparently impaired state. The officers actions were those of reasonable, well-trained and caring officers.

Kenneth R. Wallentine
March 24, 2020

Ken Wallentine
3330 West Signal Peak Drive, #RP318
Taylorsville, Utah 84129
801-871-8052
krwallentine@gmail.com

Curriculum vita summary

- Chief of police since 2005
- Investigations Bureau Chief 2002-2005
- Law enforcement officer since 1982
- Chair of Salt Lake County Officer-Involved Critical Incident Investigations Teams
- Licensed attorney since 1990
- Author of American Bar Association criminal procedure guidebook
- AELE Certified Litigation Professional
- Advanced Force Science Specialist®
- Certifications include: POST Firearms Instructor, TASER® Instructor, Excited Delirium and Sudden Death Investigation Instructor, LAPD Force Investigation Division Officer-Involved Shooting Investigation

Disclosure information for Fed. R. Civ. P. 26
March 1, 2020

Employment

I am the Chief of the West Jordan (Utah) Police Department, where I oversee all police operations and investigations. I became certified as a law enforcement officer and as a corrections officer in the State of Utah in 1982. I was formerly employed with the Utah Attorney General, where I served as the Chief of Law Enforcement.

After a period in private legal and consulting practice, I was a Supervisory Special Agent with the Utah Attorney General Investigation Division, where I developed a statewide use of force training initiative and coordinated officer-involved shooting investigations and other special investigations. I also serve in a consultation role as Senior Legal Advisor for Lexipol, the nation's leading provider of law enforcement risk and policy management resources.

I was formerly employed as a Bureau Chief at the Utah Department of Public Safety, Peace Officer Standards and Training Division, where I supervised investigations into allegations of improper and excessive force, officer integrity, and criminal acts alleged to have been committed by law enforcement officers and supervised in-service training administration and certification for all peace officers in the State of Utah. I also supervised the police service dog training and certification program for the State of Utah. I had responsibility for policy drafting and review for the parent agency, the Utah Department of Public Safety.

My duties included direct supervision and command of various investigative units and agents throughout the State of Utah, supervising law enforcement officers, forensic specialists, and technicians. I commanded the State of Utah Child Abduction Response Team. I commanded the State of Utah Officer-Involved Fatality Investigation Team. I was a member of the Board of Review of the Utah Technical Assistance Program, consulting in cold case homicide and complex violent person crimes investigations. In 2010, Governor Herbert selected me for the Governor's Leadership in Public Service award for my work in public safety leadership.

Law enforcement teaching experience and certifications

I was formerly responsible for providing delivery of the Basic Training Curriculum related to all legal subjects, as well as certain tactical subjects, at the Utah Law Enforcement Academy. I continue to teach at the Utah Law Enforcement Academy. I am the author of the police academy curriculum currently in use for several subjects, including, but not limited to, use of force, reasonable force, use of force and police service dog teams, search and seizure, search and seizure for police service dog teams, and use of force/firearms instructor liability.

I am a certified POST Firearms Instructor, and have served as the lead instructor for POST Firearms courses. I am certified by the Force Science Research Center as a Force Science Analyst® and an Advanced Force Science Specialist®. I am a former certified TASER® Instructor. I am a certified Excited Delirium and Sudden Death Investigation Instructor. I was certified by the Los Angeles Police Department in Officer-Involved Shooting Investigation. In 2011, I was certified by the Institute for the Prevention of Sudden In-Custody Death as an instructor in restraint systems. I am a Certified Litigation Professional, certified by the Americans for Effective Law Enforcement.

Legal practice

I am a licensed attorney, having continuously licensed to practice law since 1990. I am admitted to practice before the United States Supreme Court, the Courts of Appeals for the Fifth and Tenth Circuits, and the State and Federal courts in the State of Utah. I am a Master of the Bench of the American Inns of Court, Inn One, where I also served as the past-President of the Inn of Court. I serve as an Administrative Law Judge for the State of Utah and for various counties and cities in Utah, providing hearing officer and appellate hearing services for hearings involving allegations of police officer misconduct for a variety of state agencies and municipalities. I was formerly on the faculty of Excelsior College, teaching Criminal Procedure, Evidence and Management Strategies for Public Safety.

I served two terms as Commission Chairman of the Salt Lake County Peace Officer Merit Service Commission, appointed by the Salt Lake County Mayor and the Mayors of the various municipalities that comprise the Unified Police Department of Greater Salt Lake County. In that capacity, I directed the commission that oversees the hiring, promotion, discipline and termination of all sworn officers of the Salt Lake County Sheriffs Office, Salt Lake County Protective Services Office and the Unified Police Department.

I was the longest serving member of the Utah Board of Mandatory Continuing Legal Education, an independent committee serving on behalf of the Utah Supreme Court. I was first appointed in 1996 and was reappointed by the Chief Justice to serve through 2016.

Consultation practice

In addition to my primary employment, I occasionally consult and provide expert witness opinions on police procedures, and use of force issues. I occasionally perform in-custody death investigations and officer-involved shooting death investigations for agencies which may lack the requisite expertise. I am a consultant to the Utah Risk Management Mutual Association, the state's largest insurer of public safety agencies, on matters of officer conduct and discipline, hiring and screening practices, use of force, and police pursuit policies.

I am the co-founder of a best practices advisory group that developed comprehensive model policies and best practices under the authority of the Utah Chiefs of Police Association, the Utah Sheriffs Association and various state law enforcement agencies. These policies serve as a model for all Utah public safety agencies. I am the author of a number of model policies for law

enforcement agencies, and have provided policy drafting and policy review services for several agencies, including policy drafting responsibility for large law enforcement agencies. I have served as a contract consultant to the United States Department of Justice, assigned to provide technical assistance and management consulting to various public safety entities in the United States.

Professional activities and organizations

I participate and serve in a number of community and professional capacities. I am the Chair of the Governing Board of the Officer-Involved Critical Incident Investigations Teams in Salt Lake County, Utah. I am Vice-Chair of the Salt Lake County Law Enforcement Administrators and Directors Association. Other professional activities include serving as a member of the Board of Directors of the Institute for the Prevention of Sudden In-Custody Death, former member of the Board of Directors of Crisis Intervention Team Utah, Past-President of the Utah Peace Officers Association, former Board Member of the Utah SWAT Association, member of the International Association of Law Enforcement Educators and Trainers Association, member of the International Association of Chiefs of Police and the Utah Chiefs of Police Association, member of the National Tactical Officers Association, member of the International Association of Law Enforcement Firearms Instructors, member of the International Association of Directors of Law Enforcement Standards and Training, member of the International Law Enforcement Educators and Trainers Association, member of the K9 Section of the Utah Peace Officers Association, member of the United States Police Canine Association, Life Member and past member of the board of directors of the NAACP, Salt Lake City branch, and board member and co-Chairman of the Utah Law Enforcement Legislative Committee.

I formerly served as a gubernatorial appointee to the Council on Peace Officer Standards and Training. I am a former member of the Scientific Working Group on Dog and Orthogonal Detector Guidelines, a national scientific best practices organization sponsored by the Federal Bureau of Investigation, the Department of Homeland Security, and the Transportation Security Administration, with support coordinated by the International Forensic Research Institute at Florida International University. I have been a presenter at a variety of professional conferences and seminars, including presenting on use of force training at the annual convention of the International Association of Chiefs of Police and the International Conference of the Institute for the Prevention of Sudden In-Custody Death.

Publication history

I have previously published a number of other professional articles, many of which have been subjected to peer review. My most recent book, *The K9 Officer's Legal Handbook*, 3rd ed., was published in February 2019. Another book, *Street Legal: A Guide to Pre-trial Criminal Procedure for Police, Prosecutors, and Defenders* was published in 2007 by the American Bar Association Publishing Division, with a 2020 edition now in publication. It is a treatise on public safety and criminal procedure.

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Police Chief, V. 68, No. 12 (2011); *Cell Site Location Evidence: A New Frontier in Cyber Investigation,* 2 A.E.L.E. Mo. L.J. 401 (2011); *Prospects, Pitfalls and Pains of Social Media and Public Safety*, The Municipal Lawyer, September 2010; *Police Department May Read Text Messages Sent on Agency-issued Pagers: City of Ontario, California v. Quon*, Police Chief, V. 57, No. 8 (2010); *Collection of DNA Upon Arrest: Expanding Investigative Frontiers*, Police Chief, V. 57, No. 1 (2010); *Targeting TASER: The New TASER Aim Points,* Law Officer, January 2010; *The Risky Continuum: Abandoning the Use of Force Continuum to Enhance Risk Management*, The Municipal Lawyer, July 2009; *Acknowledging Gender in Fitness Standards for Police: An Invitation to Liability?*, The Municipal Lawyer, January 2008.

Litigation history

I have testified and/or provided depositions in the following cases (limited to the past four years):

Peralta v. Arizona Department of Public Safety, No. CV-17-01868-DJH-BSB, United States District Court for the District of Arizona, 2020. Trial testimony given on behalf of defendant. Subject matter: police custody.

Krakana & Zinn v. City of Scottsdale, No. CV-17-01813-PHX-JJT,United States District Court for the District of Arizona, 2020. Trial testimony given on behalf of defendant. Subject matter: police tactical operation.

Smith v. City of Waterloo, Case No. LACV133172, District Court for Black Hawk County, Iowa, 2019. Trial testimony given on behalf of defendants. Subject matter: emergency vehicle operation.

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Talley v. City of Charlotte, No. No. 3:14 CV 683, United States District Court for the Western District of North Carolina, 2016. Deposition testimony given on behalf of the defendants. Subject matter: negligent custody.

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McDonald v. Dupnik, No. C20142895 Superior Court, State of Arizona, Pima County, 2016. Trial and deposition testimony given on behalf of defendants. Subject matter: police force to effect arrest.

McKenney v. Mangino, No. 2:15-CV-73-JDL, United States District Court for the District of Maine, 2015. Deposition testimony given on behalf of defendant. Subject matter: wrongful death.

Moore v. City of Lakeland, No. 8:13-cv-02660-T-26TBM, United States District Court for the Middle District of Florida, 2015. Trial testimony given on behalf of defendant. Subject matter: police force to effect arrest.

Frasier v. McCallum, et al., No. 1:14-cv-00009-MP-GRJ, United States District Court for the Northern District of Florida, 2015. Deposition testimony given on behalf of defendant. Subject matter: mistaken arrest.

Wolffis v. City of Gainesville, No. 1:14-cv-130, United States District Court for the Northern District of Florida, 2015. Deposition testimony given on behalf of defendant. Subject matter: police force to effect arrest.

Castillo v. City of Tempe, No. 2:12-CV-02225-ROS, United States District Court for the District of Arizona, 2015. Trial testimony given on behalf of defendants. Subject matter: police force to effect arrest.

Stoedter v. Salt Lake County, et al., No. 2:12-CV-255-BJ, United States District Court for the District of Utah, 2015. Trial and deposition testimony given on behalf of the defendants. Subject matter: police force to effect arrest.

Consultation and Expert Witness fees, effective January 1, 2020 through December 31, 2020

For matters which progress beyond an initial brief consultation, I charge $250.00 per hour for examination of reports and documents, site visits, interviews, administrative tribunal, deposition or court testimony, with a minimum fee of $1,000.00 for deposition or court testimony. I bill for actual travel expenses and a travel fee of $1,000.00 per day/part-day for travel to western states and $1,500.00 per day/part-day outside western states. Unless airline tickets are pre-paid by the client, I travel only with tickets purchased as fully refundable.

EXHIBIT T

EXHIBIT T

AFFILIATED NEUROLOGISTS, LTD.
525 NORTH EIGHTEENTH STREET, SUITE 602
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J. MICHAEL POWERS, M.D.

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March 26, 2020

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ASST. U.S. ATTORNEY, U.S. DEPT. OF JUSTICE
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RE: JOSHUA R. ORTEGA, Et. Al. VS. USA
DISTRICT COURT #: CV-19-08110-TCT-JAT

Dear Ms. Hemann and Mr. Bailey:

At your request, I have reviewed the medical file on Sonia Ortega found deceased in Kayenta, Arizona on the Navajo reservation on 11/24/17. I am asked to address the cause of her death, the clinical presentation and subsequent clinical course leading to her demise, the extent that her clinical presentation should have been evident to have a cause other than intoxication, and the extent that any therapeutic intervention would have likely been available to alter her clinical course.

The medical records reviewed in this regard consist of

1. Prior medical records from Las Vegas Spine and Pain Center from 11/18/15 through 11/13/17.
2. The final autopsy protocol and medical examiner's final summary from Michael Madsen, M.D., Coconino County Assistant Medical Examiner.
3. Photographs of the autopsy.
4. Coconino medical examiner's file.
5. Three incident reports dated 11/23/17 and 11/24/17.
6. The Kayenta Police District criminal investigation file.
7. The hotel check-in video.
8. The hotel clerk interview.
9. The expert report of Dr. Joseph M. Zabramski.

10. Deposition transcripts of Kim Fragua, Garrett Manygoats, Vernon Nelson, Tonia Greyeyes and Emmett Yazzie.
11. Nevada State Board of Pharmacy record regarding Sonia Ortega
12. Las Vegas Radiology records regarding Sonia Ortega

The above sources indicate that Ms. Sonia Ortega was encountered at the Chevron gas station in Kayenta, Arizona the evening of 11/23/17. She was initially encountered by Kim Fragua, a Navajo patrol officer, who was off-duty and happened to be at the gas station. Ms. Ortega was observed to be staggering and had urinated on her pants. Ms. Fragua noted that she had slurred speech and red bloodshot eyes, but was communicating coherently. Ms. Fragua occupied her in conversation while she awaited arrival of police officers that she had summoned.

Ms. Ortega ultimately was met by active on-duty officers Garrett Manygoats and Vernon Nelson who report that she remained out of her vehicle. They confirmed the observation that she had been incontinent of urine and that she had slurred speech and bloodshot eyes. They concluded that she was intoxicated. She was asked if she had consumed alcohol and she responded that she had not. She was asked if she had alcohol in her vehicle and she affirmed that she did. She reportedly requested an alcohol breath test, but such a test was not available. The officers report that since public intoxication in a non-native is not a crime on the reservation and since she was not driving, there was no basis to arrest her. She was asked if she needed medical attention and she declined. She did not report having a headache. Since she was not under arrest no field sobriety assessment was performed. The officers do not recall detecting any odor of alcohol on her breath.

The officers indicated their concern was for her personal safety. She was informed that she should not drive and it was suggested that she spend the night at the Monument Valley Inn next to the gas station. She agreed and one officer drove her vehicle there while the other officer drove her to the Inn.

Video shows Ms. Ortega checking in. She appears to be mildly unsteady, but is able to walk independently without support from the officers. The desk clerk was Ms. Greyeyes who reported that she believes she did detect alcohol on her breath. She observed that her makeup was smeared. She recalls that Ms. Ortega gave her a credit card, but it was expired, then gave her a membership card and it took a while for her to find an active credit card. Ms. Greyeyes does not recall her talking to her during this time. Keys to a room near the lobby were provided and the officers started to escort her to the room. Ms. Greyeyes noted that Ms. Ortega had left her wallet on the desk and an officer was given it. The video shows her turning and walking slowly with at most a subtle circumduction of the left leg. The officers stated they did not observe any lateralized weakness during their encounters with her.

When she arrived at the room, she opened the door and could not locate the light switch. Officer Manygoats said that she went in and turned on a lamp next to the bed, at which time Officer Manygoats found the light switch on the wall. Ms. Ortega then reportedly sat down on a chair next to the bed and said, "thank you officers, good night" and they departed.

Officer Nelson indicated that she appeared to be moderately intoxicated, but "not extreme." The next morning she was found slumped over in the same chair and there was no indication the rest of the room had been disturbed. Blood testing for alcohol and common drugs of abuse proved negative. Photographs show her slumped over the chair arm and she has been incontinent of stool.

Autopsy photos were reviewed. Examination of the brain shows blood over the exterior surface of the right frontal lobe. Coronal sections of the brain are performed and show a large hemorrhage extending from the right lateral ventricle to the right frontal lobe, exiting at the frontal pole. Hemorrhage extends then into both lateral ventricles and the third ventricle. The brain stem has been removed in the coronal sections that are photographed. The thalamus and the lentiform nuclei appear to be spared bilaterally. Hemorrhage does involve the caudate nucleus anteriorly on the right side. There is evidence of mass effect with right to left shift. The medical examiner's report indicates that her past medical history was significant for hypertension and chronic pain. There is no evidence of other trauma. The final diagnosis was that of a large right frontal hematoma with extension into the right lateral ventricle and third ventricle with associated swelling. Death was classified as natural and attributed to intracerebral hemorrhage. Hypertensive cardiovascular disease was listed as a significant condition. The autopsy report, however, notes that the sections of the heart appeared unremarkable and the coronary artery sections showed no significant atherosclerosis. The aorta and other vessels were described as unremarkable. Gross examination of the kidneys showed no abnormality. Microscopic examinations were performed including right and left lung, liver, pancreas and kidney, anterior left ventricle and posterior right ventricle, posterior left ventricle and intraventricular septum, right frontal lobe and pons. It was reported that the histological section showed no additional significant pathologic findings. Thus, there was no report of any finding supporting a diagnosis of the effects of hypertension on her heart, blood vessels or kidneys.

Additionally, it is noted that in the multiple visits to Las Vegas Spine and Pain starting in November 2015, her blood pressure was observed to be mildly elevated at 124/90 and 154/94. Subsequent note is made that she was being treated with losartan/HCTZ and then amlodipine was added. She was also taking aspirin 81mg a day. Multiple subsequent blood pressure measurements through 2016 and 2017 up to 11/13/17 are all normal.

The final autopsy protocol indicates that her date of death was 11/24/17 and the date of the exam was 11/28/17. The autopsy photos show evidence of incontinence of stool with established rigor

mortis in all extremities and nonblanching livor mortis on the posterior surfaces of the body except for those exposed to contact pressure. Circumferential lividity was noted involving the distal forearms and hands with associated petechiae. Photos from the morning of 11/24/17 show that her arms are dangling in a dependent posture.

Dr. Joseph Zabramski, neurosurgeon, reported reviewing the medical examiner's report, the toxicology reports, the video recording of the hotel check-in and the photo images from the autopsy and the hotel room. He offered his opinion that Ms. Ortega died secondary to a large spontaneous intracerebral hemorrhage involving the right frontal lobe. He noted there was no evidence of underlying vascular malformation or aneurysm. He stated that the medical examiner's findings and medical history "are diagnostic of a spontaneous hypertensive intracerebral hemorrhage." He opined that his review of the video recording her checking in "reveals a woman with relatively mild motor and cognitive deficits who is still able to ambulate with minimal assistance. The video is consistent with neurological deficits related to the right frontal lobe hemorrhage."

It should be noted that Ms. Ortega was able to ambulate independently without assistance. A right frontal lobe hemorrhage, particularly if it begins deep in the hemisphere typical of a hypertensive hemorrhage would be expected to cause left body paralysis and no paralysis is evident on my review of the video.

Dr. Zabramski continues to opine that "spontaneous intracerebral hemorrhages related to hypertension are frequently complicated by episodes of rebleeding." He notes that such bleeding would result in increasing mass effect with progressive loss of neurological function and level of consciousness. He concludes, "when the hemorrhage reaches the size recorded at autopsy by the medical examiner, neurosurgical management is necessary within hours to prevent death." Dr. Zabramski continues with the opinion that had she had a CT scan of her head at the time of the video of her check-in, it would have been diagnostic of stroke. Had such a scan been obtained, he opines that it would have resulted in emergency referral to the nearest medical center with neurosurgical coverage. He further opines that if CT imaging was not immediately available locally, a diagnosis of stroke would have led to emergency referral to the nearest medical center with CT imaging (Flagstaff Medical Center).

He notes that the size of the hemorrhage at the time of the check-in video would have been significantly smaller than that observed at autopsy. He concludes that she suffered a rebleeding episode (S) that led to her progressive loss of neurological function and death.

He concludes that "medical evaluation and intervention performed at the time of this video would have provided an opportunity for the patient to survive and potentially recover from the hemorrhage."

I take issue with a number of Dr. Zabramski's opinions and conclusions. I agree that at the time of the video of her checking in to Monument Valley Inn, her hematoma necessarily would have been much smaller than that observed at the time of her autopsy. An individual with hemorrhage such as is seen at the time of autopsy would not have been conscious or able to communicate or ambulate. There necessarily had to be progression of bleeding after the time of her check-in as documented in the video.

A CT scan is very sensitive for detecting cerebral hemorrhage and presuming that her impairment at the time of her video check-in was due to an early cerebral hemorrhage, it would have been identified on CT scan. At issue is whether her presentation was such that a layman would be expected to detect subtle evidence of a cerebral hemorrhage as opposed to the far more probable consideration of intoxication.

It is noted that when she was first encountered she was able to communicate effectively, although her speech was slurred. There was no indication that she reported headache and she declined medical attention and declined having an ambulance called for her.

The warning signs of stroke as identified by the American Stroke Association are given the acronym FAST, which are considered to be an indication to get urgent medical attention. F stands for face drooping, A stands for arm weakness, S stands for speech difficulty, typically aphasia/impaired language, and T stands for time to call 911. There is no evidence that Ms. Ortega at the time of her interaction with the Navajo officers demonstrated any drooping of face, any arm weakness or any impairment of language. They did note slurred speech, considered to be consistent with intoxication. Slurred speech is an uncommon presentation for stroke.

Dr. Zabramski states that her stroke is typical of a hypertensive hemorrhage. I disagree. A hypertensive hemorrhage typically develops deep in the brain, commonly involving the area of the basal ganglia or the thalamus. If her hemorrhage began in those areas one would expect a rapid onset of a hemiparesis. The bulk of her hematoma is present in the right frontal lobe. It appears to have both broken into the lateral ventricle and out through the frontal pole onto the surface of the brain. The autopsy photographs indicate a lobar origin for the hemorrhage. A lobar hemorrhage can occur for various reasons including hypertension, a condition called cerebral amyloid angiopathy (CAA) and potentially by a cryptic vascular malformation which may be destroyed in the course of its rupture. CAA is a consequence of amyloid deposition in the blood vessel walls that renders them weak. Individuals with CAA are predisposed to have additional cerebral hemorrhages in the future and also predisposed to have an independent dementing condition.

Ms. Ortega's diagnoses of cerebral hemorrhage due to uncontrolled hypertension and hypertensive cardiovascular disease are not supported by the pathological material or her blood

pressure recordings during the two years prior to her death. While a lobar hemorrhage due to hypertension is possible other etiologies of her hemorrhage have not been excluded.

The officer's reports indicate that Ms. Ortega was able to walk to her room, open her door, turn on a light, sit down in the chair and thank the officers and wish them a good night. It is evident that the hemorrhage either continued to expand or rebled, accounting for her demise. The fact that she was found in the same chair, having shown no evidence of ever leaving it following the officer's departure indicates that it is probable that the additional hemorrhage occurred sooner rather than later. Lobar hemorrhages commonly expand from repeat bleeding within two hours of the initial bleeding episode. In my opinion, it is probable that within an hour or two of her sitting down her cerebral hemorrhage had expanded and was so large that it likely would have been fatal.

The officers indicate that had Ms. Ortega been found to be driving under the influence of alcohol as a non-Native, she would have been transported to the Navajo County Jail in Holbrook, Arizona, a process that would have likely taken two hours or more. If her hemorrhage evolved as rapidly as the evidence suggests, such a transport to Holbrook would not have occurred in time for there to be any medical intervention.

I see no evidence that any of the Navajo officers or other individuals such as Ms. Greyeyes had any reasonable basis for concluding that Ms. Ortega's impairment was due to a medical condition other than intoxication. During the time of their interactions, I see no basis for them having summoned an ambulance and it is again noted that Ms. Ortega herself declined having an ambulance called.

Dr. Zabramski suggest that surgical intervention, if performed at the time of the video would have afforded her an opportunity to survive and potentially recover. Unfortunately, neither her clinical presentation nor her location prompted or permitted such an emergency surgical intervention.

Furthermore, the International Surgical Trial in Intracerebral Hemorrhage (STICH) was published in 2005 and concluded that patients with spontaneous supratentorial (brain hemisphere location) intracerebral hemorrhage in neurosurgical units show no overall benefit from early surgery compared with initial conservative treatment. A current review of the subject: Cerebral Intraparenchymal Hemorrhage published in JAMA April 2, 2019 volume 321 pages 1295-1303 addresses the subject. The author's note "distinguishing CAA-related lobar intraparenchymal hemorrhage from hypertensive lobar intraparenchymal hemorrhage bears clinical and prognostic relevance because the rebleed and dementia risk are significantly higher after a CAA-related bleed." The authors comment on the STICH study, noting the uncertainty of efficacy of surgical evacuation of cerebral hemorrhages.

Cerebral hemorrhages come in large and small sizes, are life-threatening events with an overall mortality of 40% to 50%, half of which occurs in the first 48 to 72 hours. The STICH study concluded that 25% of patients had a favorable outcome with or without surgery. Rebleeding is common in intracerebral hemorrhages as clearly occurred in the case of Ms. Ortega. In my opinion, given the circumstances of her presentation it is not medically probable that she could have been transported to a location and ultimately undergone surgical or other intervention and survived.

Opinions are offered to a reasonable medical probability.

Attached, please find a copy of the JAMA article on cerebral intraparenchymal hemorrhage.

Attached, please find an abstract of the STICH article in Lancet.

Attached, please find a copy of my CV. This includes a list of my past publications.

Attached, please find a list of cases in which I have testified by deposition or trial in the last four years.

My fee for reviewing medical records, conferences with attorneys and preparing reports is $450.00 an hour. My fee for testimony is $600.00 an hour for deposition and $5000.00 a day for court testimony.

Thank you for asking me to participate in this evaluation.

Sincerely,

J. Michael Powers, M.D., FAAN

JMP/CMT/am

AFFILIATED NEUROLOGISTS, LTD

525 NORTH EIGHTEENTH STREET
SUITE 602
PHOENIX AZ 85006
J. MICHAEL POWERS, M.D.
Telephone 602-271-0950 Fax 602-258-1386

MEDICAL LEGAL FEE SCHEDULE 2019

INDEPENDENT MEDICAL EVALUATION/DISABILITY EVALUATIONS

$1500 for record review, history, examination & report - paid in advance

- Additional fee @ 450/hour if extended record review is required
- EMG/NCV testing, if needed, billed additionally at $600
- No Show Fee: $1500 applies to same day cancellation or no show
- Late Cancellation Fee: $1000 applies to cancellation within seven days of appointment
- Additional record review, attorney conferences, subsequent reports & preparation for deposition and trial testimony billed @ $450/hour

EMG/NCV TESTING

$600 – paid in advance

- No Show Fee: $600 applies to same day cancellation or no show

MEDICAL RECORD REVIEW

$450/hour, $1500 /case minimum

- Additional record review, attorney conferences, subsequent reports and preparation for deposition and trial testimony billed @ $450/hour

CIVIL CASE

$3500/retainer

- Record review, conferences, and preparation for deposition and trial testimony billed @ $450/hour charged against retainer
- IME evaluations billed @ $1500

ALL RECORDS ARE TO BE PROVIDED ON PAPER AND ARRANGED CHRONOLOGICALLY BY PROVIDER. POORLY ORGANIZED RECORDS AND RECORDS WITH MILITPLE REDUNDANCIES WILL RESULT IN AN ADDITIONAL CHARGE. PLEASE REMOVE ANY STAPLES/PAPERCLIPS ETC.

DEPOSITIONS

Depositions, one hour minimum, to be scheduled in one hour increments billed @ $600/hour

- Depositions must be prepaid by check received by my office no later than seven days prior to the date of scheduled deposition
- Full fee is nonrefundable for cancelled depositions 5 days or less from the scheduled date
- The office scheduling the deposition is ultimately responsible for all fees

TRIAL TESTIMONY

Billed @ $5000 / whole day

- Prepayment must be received two weeks prior to scheduled date of testimony
- Full fee is nonrefundable for testimony cancelled testimony two weeks prior to scheduled date
- Testimony must be prepaid by check and received no later than two weeks prior to date of testimony

March 2019

CURRICULUM VITAE

J. MICHAEL POWERS, M.D.
525 NORTH 18TH STREET, SUITE 602
PHOENIX, ARIZONA 85006
PHONE: 602-271-0950
FAX: 602-258-1386

BORN: April 12, 1945: San Diego, California

FAMILY: Married: Linda 1968-
Children: Wendy 1971; Megan 1973

EDUCATION: Elementary through High School: Shenandoah, Iowa, graduated 1963
Grinnell College, Grinnell, Iowa: 1963-1967, B.A., Biology
University of Iowa College of Medicine: 1967-1971, M.D.
Ohio State University Hospital: 1971-1972, Medicine Internship
University of Iowa Hospitals and Clinics: Residency in Neurology
First Year: 1972-1973
Second Year: 1975-1976
Third Year, Fellow-Associate: 1976-1977

MILITARY: Head of Neurology Division Fort Leonard Wood Army Hospital,
Fort Leonard Wood, Missouri: 1973-1975. Major

AWARDS Alpha Omega Alpha, Honor Medical Society, 1971
Army Commendation Medal, 1975
Fellow, American Academy of Neurology
Attending Physician of the Year, Division of Neurology,
Barrow Neurological Institute: 1981-1982, 1986-1987
Desert Southwest Chapter, National Multiple Sclerosis Society
Hall of Fame Award, 1990
Ruth Demopolis Award, 1993
Health Professional of the Year, 2005
Who's Who in Medicine and Healthcare, 1st Edition, 1996-1997
Best Doctors: Best Doctors in America 1996-Present
Phoenix Magazine: Top Docs 1995-Present
Arizona Medical Association Distinguished Service Award, 2009

LICENSURE: Iowa, No. 18675, July 12, 1972, lapsed
Arizona No. 9809, April 22, 1977

CERTIFICATION: American Board of Psychiatry and Neurology, 1979, No. 19659

EMPLOYMENT HISTORY: Affiliated Neurologists, Ltd August 1977-

MEDICAL STAFF MEMBERSHIP:

St. Luke's Medical Center, 1977-2017 Emeritus Staff,
St. Joseph's Hospital and Medical Center, 1977-2006
Good Samaritan Medical Center, 1977-2000
Healthwest Regional Medical Center (Doctor's, Humana), 1977-1999

SOCIETY MEMBERSHIP:

American Academy of Neurology, Fellow
Arizona Neurological Society, Executive Committee
Maricopa County Medical Society
Arizona Medical Association
American Medical Association
Alpha Omega Alpha

PRESENT APPOINTMENTS:

Member: Board of St. Luke's Health Initiatives (St Luke's Charitable Health Trust) , 1995-2012, Honorary 2012-
Vice-Chairman, 1995, Chairman 1996-98

Arizona Medical Board: Consultant

Clinical Assistant Professor in the Department of Neurology,
University of Arizona College of Medicine

Lecturer for Neurology Residents, Neuro-ophthalmology,
Barrow Neurological Institute 2017

Board of Directors, Bird Technologies Group, Solon/Cleveland, Ohio
Member 2004-; Chairman 2011-

Arizona Medical Association:
Delegate to Annual Meeting 1982-
Committee Member:
Bioethics Committee 1994-, Chair 2008-
Articles of Incorporation and Bylaws Committee 1994-2010
Bylaws Committee 2018-
Committee on Legislative and Governmental Affairs 1994-2019
Finance Committee 1994-2006
Committee on Resolutions and Amendments
Chairman 1996, 2001, 2002. 2003, 2004, 2007, 2008, 2009, 2010, 2011, 2012, 2014, 2016
Member 1988, 2005, 2013, 2015
Editorial Advisory Council: Arizona Medicine 2000-2010

PAST APPOINTMENTS:

Library Board, Maricopa County Medical Society, 1984-1986
Editor, Neurology Section, Arizona Medicine, 1982-1985

Barrow Neurological Institute Board, Member at Large, 1987-1990
Board of Directors, Maricopa County Medical Society, 1987-1989
Chairman, Membership Committee, Maricopa County Medical Society, 1989

Member: Professional Advisory Committee, Desert Southwest Chapter, National Multiple Sclerosis Society 1982-2008
Chairman 1982-1995
Member: National Board of PAC Chairs, National Multiple Sclerosis Society, 1992-1995
Member, Board of Trustees, Desert Southwest Chapter, National Multiple Sclerosis Society 1992-1995
Director: Section of Neuro-ophthalmology, Division of Neurology, Barrow Neurological Institute 1978-1995

Examiner, American Board of Psychiatry and Neurology

St. Luke's Medical Center:
Member: Board of Trustees, St Luke's Health System, 1990-1995
Vice-Chairman, 1993-1995
Member: Board of Trustees, St Luke's OrNda-Tenet-Iasis Health System, 1995-2002
Chairman: Quality Management Committee, St Luke's Health System, 1992-1995
President of Medical Staff, St Luke's Medical Center, 1990-1991
Vice President of Medical Staff, St Luke's Medical Center, 1988-1989
Secretary-Treasurer of Medical Staff, St Luke's Medical Center, 1986-1987
Member: By-Laws Committee, St Luke's Medical Center, 1992-1999
Member: Nominations Committee, St Luke's Medical Center, 1992-9
Member, Executive Committee, St Luke's Medical Center, 1983-1993
Member, Department of Medicine, St Luke's Medical Center, 1981-
Chairman: 1983-1985
Quality Assurance Committee, St Luke's Medical Center,
Chairman: 1988-1989
Vice-Chairman 1986-1987
Member: Institutional Review Committee, St Luke's Medical Center, 1981-2002

Director: Clinical Neurophysiology Laboratory, St Luke's Medical Center, 1977-2015

Member, Arizona Health Futures Advisory Group, KAET-TV/ Horizon, 1999-2000
Board of Governors, Arizona Foundation for the Eye, 2003-2012

Arizona Medical Association:
Secretary, Executive Committee, 1994-1996
Vice President, Executive Committee, 1996-97

President-Elect 1997-98
President 1998-1999
Immediate Past President-1999-2000
Outgoing Past President 2000-2001
Alternate Delegate to the AMA, 2002-2005
Member, Board of Directors 1994-2005

Committee Member:
Maternal and Child Healthcare 1994-1999
Long Range & Strategic Planning 1994-1997
Medical Education 1994-1999-
Ad hoc Committee on Insurance Reform, Chair, 1999-2001
Committee of Reports and Resolutions, 1988, 2006, 2008-2016
Chairman, 1990, 2003, 2007, 2008, 2009,2016
Committee on Amendments Chairman 1996, 2001, 2002. 2003, 2004
Member 2005
Nominations Committee 2001, 2002, Chairman 2000

Elected: Madison School District Board of Trustees 1982-1985
Clerk: 1983
President: 1984

Member: Citizen's Bond Advisory Committee,
Phoenix Union High School District, 1987
Member: Blue Ribbon Committee on School Finance;
Chairman, Instructional Support Subcommittee,
Phoenix Union High School District, 1989

Member: Citizens Advisory Committee
Source Water Assessment Program
Arizona Department of Environmental Quality, 1997-98

TEACHING
CONFERENCE:

Neuro-ophthalmology Conference, Barrow Neurological Institute 1977-1995; 2017-
Annual Ophthalmic Assistant Course, St Luke's Medical Center
Topic: Neuro-ophthalmology
Osler Club, member 1981-
Neuro-ophthalmology lectures to the medical students, University of Arizona Phoenix Campus 2007-

PRESENTATIONS
AND LECTURES:

Symposium on Multiple Sclerosis: "Etiologic Update"
Baptist Hospital, Phoenix , AZ, October 25, 1980
Symposium on Rehabilitation Nursing: "Neurological Testing"
Rehabilitation Specialists Group, Phoenix, AZ, July 10, 1981
Department of Psychiatry Conference, "Evoked Potentials in the
Practice of Neuropsychiatry", St Luke's Hospital, Phoenix, AZ,
January 21, 1982

Department of Medicine Conference: "Electrodiagnosis in Medicine"
St Luke's Hospital, Phoenix, AZ, November 12, 1982
Toxicology Clinical Conference: "Drug Induced Movement Disorders"
St Luke's Hospital, Phoenix, AZ, January 14, 1983
Conference: Chronic Illness and the Family; Panel Participant,
St Joseph's Hospital, Phoenix, AZ, April 15, 1983
Current Perspectives in Cerebrovascular Disease: "Medical Treatment of Stroke" Arizona Medical Association, Phoenix, AZ, December 14, 1983
Gerontology Course: "Neurological Problems of the Elderly"
St Luke's Hosptial, Phoenix, AZ, October 11, 1984
Department of Psychiatry Conference: "The E.E.G. in Psychiatry"
St Luke's Hospital, Phoenix, AZ, November 30, 1984
Current Perspectives: Curbstone Consultations
Discussant: "Neuro-ophthalmology": "Neurological Myths"
Arizona Medical Association Annual Meeting, April 25, 1985
Neuroscience Nursing Graduate Program: "Guillain-Barre Syndrome,
Multiple Sclerosis and Neuro-immunology",
Barrow Neurological Institute, Phoenix, AZ,
November 5, 1985; April 29, 1986; October 21, 1986
Arizona State University Student Health Seminar, Tempe, AZ
"Multiple Sclerosis", December 9, 1985
"Seizure Disorders", November 10, 1986
Changing Concepts in Headache Diagnosis and Treatment:
Seminar Panel Participant, St Luke's Medical Center, Phoenix, AZ, April 26, 1986
Gerontology Clinical Conference: "Movement Disorders in the Elderly" St Luke's Medical Center, Phoenix, AZ,
Conference on Visual Impairment: "Visual Processing: The Eye and the Brain" Prentice Eye Institute, Phoenix, AZ
January 30, 1987
Barrow Neurological Institute Grand Rounds: CPC discussant: Ophthalmoplegia and cavernous sinus thrombosis (Nocardia meningitis) Phoenix, AZ, March 24, 1995
Use and Misuse of EMG and NCV in the Upper Extremity, Hand Surgery Conference St. Luke's Medical Center, Phoenix, AZ, November 6, 1996
Multiple Sclerosis and Stroke, Arizona Department of Economic Security inservice training for Vocational Rehabilitation Counselors, Phoenix, AZ February 24, 1999
Managing Behavioral Health Problems in Primary Care (Moderator and Faculty Member) SLHI, Phoenix, March 22, 2002
Post-traumatic Headache, Corvel : Controversial Issues in Industrial Injuries. Phoenix, AZ October 27, 2004.
Multiple Sclerosis: Controversies and Dilemmas in Care. Moderator. Phoenix, AZ, November, 2006.
The Coming Death and Transformation of The American Hospital

Speaker, SLHI Conference, Phoenix, AZ December 8, 2006.
CRPS, presentation to MICA staff, July, 2008,
MICA attorneys May, 2009
Practice Management and Arizona Mindshare: presentation to the Arizona Neurological Society August 3, 2008
Traumatic Brain Injury, Post-concussion Syndrome and Beyond. Arizona Workers Compensation Claims Association conference, April 2009
Arizona Mindshare: Presentation to the Arizona Neurological Society August 1, 2010
Traumatic Brain Injury and Post Concussion Syndrome. RSG meeting March, 2012
Multiple presentations to Multiple Sclerosis Association meetings and support groups
CRPS presentation to Arizona Assn of Defense Counsel Aug 2012

PUBLICATIONS:

Kimura J, Powers JM, Van Allen MW: Reflex Response of Orbicularis Oculi to Supraorbital Nerve Stimulation. *Archives of Neurology* 21:193-199, 1969.

Ionasescu V, Schochet SS, Powers JM, Koob K, Conway TW: Hypokalemic Periodic Paralysis. *Journal of the Neurological Sciences*, 21:419-429, 1974.

Yamada T, Kimura J, Young S, Powers JM: Somatosensory Evoked Potentials Elicited by Bilateral Stimulation of the Median Nerve, *Neurology*, 28:218-223, 1978.

Powers JM, Block M: Primary Hypothyroidism With Reversible Hyperprolactinemia and Pituitary Enlargement. *Arizona Medicine* 37:256-258, 1980.

Powers JM: Electroretinography and Oculography. *Arizona Medicine* 37:838-840, 1980.

Powers JM: Decongestant Induced Blepharospasm and Orofacial Dystonia. *Journal of the American Medical Association.*, 247:3244-3245, 1982.

Powers JM: Drug Induced Movement Disorders. *Arizona Medicine*, 40;464-467, 1983.

Powers JM: Medical Therapy of Stroke. *Arizona Medicine*, 41:390-392, 1984.

Powers JM: Blepharospasm Due to Unilateral Diencephalon Infarction *Neurology (Cleve)* 35:283-284, 1985.

Powers JM: Neurosarcoidosis with Cortical Blindness. *J. Clin. Neuro-ophthalmol.*, 5:112-115, 1985.

Powers JM, Schnur JA, Baldree ME: Pseudotumor Cerebri Due to Partial Obstruction of the Sigmoid Sinus By a Cholesteatoma. *Archives of Neurology,* 43:519-521, 1986.

Powers JM: Herpes Zoster Maxillaris with Delayed Occipital Infarction *J. Clin. Neuro-ophthalmol.,* 6:113-115, 1986.

Ehsan T, Hasan S, Powers, JM, Heiserman JE: Serial Magnetic Resonance Imaging in Isolated Angiitis of the Central Nervous System. *Neurology (Cleve)* , 45:1462-1465, 1995.

Bomprezzi R, Powers JM: IFN Beta -1b may severely exacerbate Japanese optic-spinal MS in neuromyelitis optica spectrum. Neurology (correspondence) 77:195-196, July 2011

Mochel, F. et al: Adult Polyglucosan Body Disease: Natural History and Key MRI Findings Annals of Neurology 72:433-441 Sept 2012.

HEALTHCARE EDITORIALS AND OPINION PIECES

Arizona Medicine/AZ MED (Arizona Medical Association bimonthly to quarterly publication)

July 1998-June 1999 Editorials as President of ArMA

Is Healthcare a Right? November-December 2002

Healthcare Delivery: A New Paradigm vs The Dumbing Down of Medicine? November-December 2004
(Opinion Piece and Editor)

Information Technology: The Promise and the Peril
July-August 2006
(Opinion Piece and Editor)

Generic Substitutions: when should we be concerned?
Opinion Piece: Summer 2008

The Medicare Part D: a donut hole that devours dinner or drugs?
Opinion Piece: Summer 2009

January 2019

J. Michael Powers, M.D.

Expert witness depositions and court testimony 2016-

Brown vs Banner(CV2014-014745)(vertebral artery dissection) Deposition and trial 2016. Pl: Shawn M Cunningham (Harris, Powers & Cunningham); Def: Jeffrey L McLerran (Campbell, Yost, Clare & Norell).

Quevedo vs Bashas' (CV2014-009247)(mild concussion after ground level fall) Deposition 2016. PL: Rosa Quevedo representing herself but did not appear; Def: Ian Neale (Burch & Craccchiolo).

Barrett vs Central Arizona Heart Specialists (CV2014-095271)(arm pain and tremor following radial artery occlusion) Deposition 2016. Pl: James D. Campbell (Kinerk, Schmidt & Sethi); Def: Bruce Crawford (Crawford & Kline).

Schwartz vs Banner (CV2014-003484)(alleged delay in cervical discectomy) Deposition part 1 and 2, 2016. Pl: Daniel Adelman (Adelman German, PLC), Roger T. Sharp (Roger T. Sharp, LLC); Def: Jill Covington (Slattery Peterson PLLC), Margaret F. Dean (Campbell Yost Clare & Norell).

Rubin vs Ironworkers Local 75, et al (CV2012-006999)(neck pain after MVA) Deposition 2016. Pl: Gregory Novak (Kleinman, Lesselyong & Novak), Def: Heather Neal (Gust Rosenfeld, PLC).

Reis vs Cronin (CV20145205 Pima)(tardive dyskinesia) Deposition 2016, Video Trial testimony 2016. Pl: Laurence M Berlin (Lawrence M Berlin PC); Def Peter Akmajian (Udall Law Firm).

Baker vs Stevenson (CV2014-009089) (MVA-concussion) Treating Physician. Deposition 2016. Pl: Matthew L. McCLellan (The McClellan Law Firm), Def: Susan Purtill (Grasso Law Firm).

UIM Claim of James Chobar (arbitration for insurance dispute)(alleged concussion in MVA). Video deposition/testimony for hearing 2016. (Dean Cox (Dean Cox, LLC)

Tytler vs Gilbert Hospital/Gilman Wolsey MD (CV2015-003087) (cocci meningitis) Deposition 2017. Pl: Thomas Chamberlin (Jennings, Haug & Cunningham), Def: Michael Bradford (Bradford Law Offices).

Shores vs CORE, Araghi (CV2014-009823) (alleged wrong level spinal surgery) Deposition 2017. Pl: Frank Powers (Harris Powers & Cunningham), Def: Katherine Corcoran (Broening Oberg Woods & Wilson).

Dreyfus vs Arpaio (CV2015-003077) (encephalopathy-alcohol withdrawal). Deposition 2017. Pl: Anne Findling (Robbins & Curtain), Def: Sherle Flaggman (Maricopa County Attorney's Office).

Celaya vs St. Mary's Hospital et al (C20160827 Pima) (Vision Loss-Temporal Arteritis) Deposition 2017, Trial 2018. Pl: Kevin Keenan (Osborne & Keenan) Robert Kleinschmidt (Robert Kleinschmidt PC); Def: Dan Cavett (Cavett & Fulton), Laura MacBan (MacBan Law Offices), Tom Slutes (Slutes, Sakrison & Rogers PC), James Broening (Broening Oberg Woods & Wilson).

Pierce vs Dignity Health (CV2015-011239)(postoperative arm pain-alleged CRPS) Deposition 2017, Trial 2018. Pl: Scott Ambrose (Burg Simpson Eldredge Hersh & Jardine); Def: Richard Kent, James Frisbie (Kent & Wittekind).

Laster vs Benedict (Mohave CV:2015-04103)(groin and leg pain) Video Testimony 2017. Pl: T-sura-Ann Elias (Gregory & Elias); Def: Jay Fradkin (Jennings, Strouss & Salmon).

Jaworske vs Banner & Pavelonis (CV2014-055451)(ulnar neuropathy) Testimony 2018. Pl Mark Wesbrooks (The Wesbrooks Law Firm), Def: Margaret Dean (Campbell, Yost, Clare & Norell), Gary Fadell (Fadell Cheney & Burt).

Seldin vs Marlowe (CV2015-004816)(multiple symptoms after minor MVA) Deposition 2018. Pl Jason Bruno (Sherrets Bruno & Vogt), Def: F. Richard Cannata, Jr (Jones, Skelton & Hochuli).

Behrendt vs Pinnacle Entertainment, Inc (CV2016-015063)(head injury, treating physician) Deposition 2018 X2. Pl: Randall A. Hinsch (Plattner Verderame, PC); Def: Nathan Metzger (Metzger Law firm).

Wilnewic vs Urgent Care Extra (Pima C2016-3663)(stroke) Deposition 2018. Pl: Laurence Berlin, Def: Cody Hall (Broening Oberg Woods & Wilson).

DeHart vs Yuma Regional Medical Center (Yuma S1400CV201700718) (fall with head injury). Deposition 2018. Pl: Les Weisbrod (Miller Weisbrod L.L.P.), Alan Bowman (Bowman & Smith), Def: Martin Clare (Campbell, Yost, Clare & Norell).

Duarte vs Thorpe et al (CV2015-002104) (compartment syndrome). Deposition 2018, Michael Poulton (Poulton & Noroian); Def: Megan Gailey (Broening Oberg Woods & Wilson), Tophas Anderson IV (Lewis Brisbois Bisgaard & Smith), Mary Isban (Campbell Yost Clare & Norell).

LaCivita vs Suykerbuyk/Metro Foot & Ankle (CV2017-000890)(alleged CRPS). Deposition 2018. Pl: Thomas McGovern (McGovern Law Offices); Def: Bruce Crawford (Crawford and Kline).

Cavallo vs Phoenix Health Plans, et. al.(CV2016-015531)(multiple sclerosis exacerbation off Tysabri) Deposition 2018; Trial 2019. Pl: Steven Dawson, Anita Rosenthal (Dawson & Rosenthal); Def: Michael Sillyman (Kutak Rock LLP).

Tatlow vs Bokhari (CV2017-011904) (post biopsy brachial plexus neuritis). Deposition 2018, Trial 2019. Pl: John Ager (Sandweg & Ager); Def Russell Skelton (Jones Skelton & Hochuli).

Kuckuck vs Blue Star Gas (CV2017-006618)(alleged concussion, Industrial IME evaluating physician). Deposition 2019. Pl: Mark Breyer, (Breyer Law Firm); Def: David Stout (Jones, Skelton & Hochuli) Robert Brown (Holloway, Odegard & Kelly), Annelise M. Dominguez (Gordon & Rees Scully Mansukhani).

Moreno vs Dignity Health (CV2018-003954)(peripartum sciatic neuropathy). Deposition 2019. Pl: Shawn Cunningham (Harris Powers & Cunningham); Def: Rick Kent, Jim Frisbie (Kent & Wittekind).

Montgomery vs Yeung (CV2017-053001)(postop foot drop). Depositioin 2020. Pl: Steven A Cohen (Cohen Law Firm); Def: Scott King (Broening, Oberg Woods Wilson).

Stayton vs Lex (CV2018-00164-Coconino)(multiple cranial neuropathies after facial infection). Deposition 2020. Pl Zaheer A. Shah (Shah and Associates); Def Bruce Crawford (Crawford & Kline)

Leschak vs Cavanaugh (CV20185007 Pima)(Alleged Thoracic Outlet Syndrome following MVA). Deposition 2020. Pl Scott Baker (Law Offices of Scott MacMillan Baker, PC); Def: Michael Gluski (American Family Insurance).

Underlined= individual/firm retaining JMP

February 2020

PubMed

Format: Abstract

Full text links

THE LANCET FULL-TEXT ARTICLE

Lancet. 2005 Jan 29-Feb 4;365(9457):387-97.

Early surgery versus initial conservative treatment in patients with spontaneous supratentorial intracerebral haematomas in the International Surgical Trial in Intracerebral Haemorrhage (STICH): a randomised trial.

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Abstract

BACKGROUND: Spontaneous supratentorial intracerebral haemorrhage accounts for 20% of all stroke-related sudden neurological deficits, has the highest morbidity and mortality of all stroke, and the role of surgery remains controversial. We undertook a prospective randomised trial to compare early surgery with initial conservative treatment for patients with intracerebral haemorrhage.

METHODS: A parallel-group trial design was used. Early surgery combined haematoma evacuation (within 24 h of randomisation) with medical treatment. Initial conservative treatment used medical treatment, although later evacuation was allowed if necessary. We used the eight-point Glasgow outcome scale obtained by postal questionnaires sent directly to patients at 6 months follow-up as the primary outcome measure. We divided the patients into good and poor prognosis groups on the basis of their clinical status at randomisation. For the good prognosis group, a favourable outcome was defined as good recovery or moderate disability on the Glasgow outcome scale. For the poor prognosis group, a favourable outcome also included the upper level of severe disability. Analysis was by intention to treat.

FINDINGS: 1033 patients from 83 centres in 27 countries were randomised to early surgery (503) or initial conservative treatment (530). At 6 months, 51 patients were lost to follow-up, and 17 were alive with unknown status. Of 468 patients randomised to early surgery, 122 (26%) had a favourable outcome compared with 118 (24%) of 496 randomised to initial conservative treatment (odds ratio 0.89 [95% CI 0.66-1.19], p=0.414); absolute benefit 2.3% (-3.2 to 7.7), relative benefit 10% (-13 to 33).

INTERPRETATION: Patients with spontaneous supratentorial intracerebral haemorrhage in neurosurgical units show no overall benefit from early surgery when compared with initial

conservative treatment.

Comment in

Surgery versus conservative treatment for intracerebral haemorrhage--is there an end to the long controversy?

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Cerebral Intraparenchymal Hemorrhage
A Review

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IMPORTANCE Although spontaneous intraparenchymal hemorrhage (IPH) accounts for less than 20% of cases of stroke, it continues to be associated with the highest mortality of all forms of stroke and substantial morbidity rates.

OBSERVATIONS Early identification and management of IPH is crucial. Blood pressure control, reversal of associated coagulopathy, care in a dedicated stroke unit, and identification of secondary etiologies are essential to optimizing outcomes. Surgical management of hydrocephalus and space occupying hemorrhage in the posterior fossa are accepted forms of treatment. Modern advances in minimally invasive surgical management of primary, supratentorial IPH are being explored in randomized trials. Hemorrhagic arteriovenous malformations and cavernous malformations are surgically excised if accessible, while hemorrhagic dural arteriovenous fistulas and distal/mycotic aneurysms are often managed with embolization if feasible.

CONCLUSIONS AND RELEVANCE IPH remains a considerable source of neurological morbidity and mortality. Rapid identification, medical management, and neurosurgical management, when indicated, are essential to facilitate recovery. There is ongoing evaluation of minimally invasive approaches for evacuation of primary IPH and evolution of surgical and endovascular techniques in the management of lesions leading to secondary IPH.

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Spontaneous intraparenchymal hemorrhage (IPH) is relatively common and has devastating consequences. Recognition of risk factors (eg, hypertension), early distinction from an ischemic event, and identification of clinical features that can worsen IPH complications is important in optimizing outcomes from IPH. This review examines the pathophysiology of and management options for IPH, with the intent of helping clinicians better manage the condition. IPH accounts for 6.5% to 19.6% of cases of stroke[1,2] but is associated with the greatest rate of mortality; 1-year survival from IPH is approximately 40%,[3-5] and 10-year survival is 24%.[4] Across several studies, the rate of functional independence at follow-up varied from 12% to 39%.[5] A meta-analysis of 36 studies reported an incidence of IPH of 24.6 per 100 000 person-years (range, 1.8-129.6), and the rate was significantly higher in Asian and older populations.[5]

Methods

The PubMed database was searched on September 1, 2018, using the terms intracerebral hemorrhage and intraparenchymal hemorrhage, for English-language studies of the pathophysiology, epidemiology, and management of IPH published after January 1, 2015. Large population epidemiologic studies, randomized trials, and formal treatment guidelines were reviewed. Relevant references published before January 1, 2015, were extracted and also reviewed. Studies providing only aggregate data for all types of hemorrhagic stroke (including subarachnoid hemorrhage) were excluded. This review was based on 77 referenced articles, including 11 clinical trials, 10 meta-analyses, 41 observational studies, 2 guidelines, and 13 other reports.

Epidemiology and Pathophysiology

Primary IPH, accounting for 78% to 88% of cases of IPH, refers to rupture of damaged small arteries or arterioles, most commonly secondary to either hypertension or cerebral amyloid angiopathy (CAA). Secondary IPH can occur secondary to coagulopathy; cerebral venous thrombosis; moyamoya; vasculitis; tumor; hemorrhagic conversion of ischemic stroke; or rupture of a mycotic aneurysm or vascular malformation, such as an arteriovenous malformation (AVM), arteriovenous fistula, or cavernous malformation (Table 1).

Primary IPH

Hypertension is the primary risk factor for IPH.[2,4] Hypertension-induced degenerative changes in small, arterial perforators are thought to increase the likelihood of rupture, and hypertensive hemorrhage has a proclivity to occur in the deep brain structures supplied by these vessels (basal ganglia, thalamus, brainstem, and deep

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Table 1. Spontaneous Intraparenchymal Hemorrhage (IPH) Etiology

	Treatment
Primary IPH	
Hypertension	BP control, trial enrollment for evacuation[a]
Cerebral amyloid angiopathy	BP control, trial enrollment for evacuation[a]
Secondary IPH	
Coagulopathy	Reversal, remainder as per primary IPH
AVM/AVF	Surgery, embolization, or radiosurgery
Cavernous malformation	Surgery
Distal/mycotic aneurysm	Embolization/surgery
Cerebral venous thrombosis	Anticoagulation and possibly thrombectomy
Moyamoya	Surgical revascularization
Vasculitis	Immunomodulatory medications
Hemorrhagic brain tumor/metastasis	Surgical resection as indicated
Hemorrhagic conversion of stroke	Expectant management

Abbreviations: AVF, arteriovenous fistula; AVM, arteriovenous malformation; BP, blood pressure.

[a] Empirical surgical evacuation is reasonable outside of trials for cerebellar hemorrhages of at least 3 cm in diameter. It is of consideration in patients with supratentorial IPH and clinical deterioration or coma.

cerebellum). A case-control study from 22 countries of 3000 patients with acute stroke compared with 3000 controls demonstrated that in the 663 patients with IPH (22%), hypertension was the strongest risk factor (odds ratio [OR], 9.18 [95% CI, 6.80-12.39]).[2] Additional significant risk factors included smoking (OR, 1.45 [95% CI, 1.07-1.96]) and alcohol intake (1-30 drinks per month: OR, 1.52 [95% CI, 1.07-2.16]; >30 drinks per month or binge drinking: OR, 2.01 [95% CI, 1.35-2.99]). Another case-control study of 3173 patients aged 55 years and older demonstrated heavy alcohol intake to be associated with deep IPH risk (OR, 1.68 [95% CI, 1.36-2.09]) and overall IPH risk (OR, 1.38 [95% CI, 1.17-1.63]).[6] Increased alcohol intake is postulated to result in platelet dysfunction/coagulopathy and, potentially, endothelial damage.[6] Increased high-density lipoprotein cholesterol, low total cholesterol, and low non–high-density lipoprotein cholesterol are also associated with IPH.[2,7] A 2015 study of 1145 patients with IPH reported annual rebleed rates of 7.8% and 3.4% for lobar and nonlobar primary IPH, respectively.[8] Lobar IPH refers to cortical or subcortical IPH, in contrast to deep or nonlobar IPH, which involves the basal ganglia, thalamus, brainstem, and deep cerebellum.

CAA results from β-amyloid deposition in cortical blood vessels; the vessels are consequently weakened and have an increased tendency to rupture, making CAA an independent risk factor for lobar IPH.[9] It has been shown that the presence of the E2 and E4 alleles of apolipoprotein E are associated with increased deposition of β-amyloid in the vessel wall and, consequently, hemorrhage risk.[10] Distinguishing CAA-related lobar IPH from hypertensive lobar IPH bears clinical and prognostic relevance because the rebleed and dementia risks are significantly higher after a CAA-related bleed.[11,12] A 2017 meta-analysis of 10 studies with 1306 patients with IPH reported a recurrent IPH risk of 7.4% in CAA-related IPH compared with 1.1% in non–CAA-related IPH ($P = .01$).[11]

The modified Boston criteria, serving as diagnostic criteria for CAA, underscores that a definite diagnosis of CAA can only be made following a full postmortem examination demonstrating the vasculopathy.[9] A probable diagnosis is based on supporting surgical pathology with some degree of CAA in the specimen. A probable diagnosis can also be made in a patient who is older than 55 years who does not have another cause of hemorrhage, with multiple bleeds restricted to lobar, cortical, or cortical-subcortical regions or a single bleed with cortical superficial siderosis.[9] A 2018 autopsy study of 110 adults with IPH reported the presence of subarachnoid hemorrhage, *APOEE4*, and "finger-like" projections on computed tomographic imaging to be significant independent predictors for CAA-related lobar IPH.[13] Finger-like projections were defined as elongated extensions arising from the hematoma that were longer than they were wide. The absence of all 3 factors had a negative predictive value of 100%, while the presence of subarachnoid hemorrhage and 1 other factor had a positive predictive value of 96%.[13]

Secondary IPH

Secondary IPH can result from coagulopathy, vascular malformation rupture, cerebral venous thrombosis, mycotic aneurysm rupture, moyamoya, tumor, hemorrhagic conversion of an ischemic stroke, or vasculitis.[14] Vascular malformations capable of rupture include AVMs, arteriovenous fistulas, and cavernous malformations. AVMs are parenchymal webs of dysplastic arteries that shunt into the venous system with an approximate overall prevalence of 0.01%.[15] They harbor a 2% risk of rupture per year that increases to 4% for hemorrhagic AVMs and 6% within the first year of a hemorrhage.[16] High-risk features that may further increase this risk include exclusive deep venous drainage, deep AVM location, and associated aneurysms.[16] Deep venous drainage occurs via the internal cerebral, basal, or precentral cerebellar veins through the vein of Galen, as opposed to cortical (superficial) venous outflow. Arteriovenous fistulae, most often dural arteriovenous fistulae, are acquired, direct arteriovenous connections occurring within the dura mater. If drainage exits from the dura into a pressurized cortical vein, hemorrhage may occur akin to a hemorrhage secondary to cortical vein or venous sinus thrombosis as a result of local venous hypertension. The annual hemorrhage risk for asymptomatic dural arteriovenous fistulas is 3%, increasing to 46% for patients presenting with hemorrhage.[17]

Cavernous malformations are low-flow collections of dilated, endothelium-lined sinusoids that generally produce relatively small bleeds when they hemorrhage, at a rate of 0.4% to 0.6% per year for incidental lesions and as high as 22.9% per year for previously ruptured lesions, particularly within the first 2 years of a bleed.[18-20] Hemorrhagic morbidity and mortality for vascular malformations are somewhat lower than for overall primary IPH,[21] particularly for cerebral cavernous malformations, where hemorrhagic mortality is rare.[18,19] A 2016 meta-analysis of natural history of cavernous malformation reported posthemorrhage full recovery or minimal disability at 78.5% per person-year and mortality after bleeding at 2.2%.[20]

Cerebral venous thrombosis is estimated to affect 5 people per million, annually, with known predisposing factors including prothrombotic conditions; pregnancy and the puerperium; use of oral contraceptives; cancer; parameningeal infections; and systemic diseases, such as lupus, inflammatory bowel disease, and thyroid

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disease.[22] It may cause IPH as a result of venous hypertension, impaired drainage of the cerebral parenchyma, and consequent vein rupture, accounting for 5% of cases of IPH in younger patients.[22,23] As of yet, the prospective risk of IPH from venous thrombosis is poorly quantified in the literature.

While typical saccular aneurysms primarily cause subarachnoid hemorrhage, select aneurysms, such as middle cerebral artery, internal carotid artery terminus, pericallosal, and distal posteroinferior cerebellar artery aneurysms, may cause IPH as well. Atypical distal aneurysms, often mycotic due to septic emboli, may cause IPH. An appropriate index of suspicion is necessary in patient populations more prone to harbor these lesions, such as patients with sepsis or infective endocarditis.[24]

Although it is often a source of ischemic events, moyamoya arteriopathy that results from progressive intracranial arterial stenosis and resultant formation of fragile collateral vessels may result in hemorrhage from rupture of these vessels in adult patients.[25] In a randomized study of hemorrhagic moyamoya in the Japanese population, the rate of recurrent hemorrhage was 7.6% per year, comparing unfavorably to a rate of 2.7% per year for patients treated via surgical direct bypass.[26]

Hemorrhagic transformation of ischemic stroke occurs in approximately 12% of cases, with history of atrial fibrillation and infarct size identified as statistically significant risk factors for its occurrence.[27,28] Two-thirds of cases are petechial hemorrhages (often referred to as hemorrhagic infarction [HI]), and one-third are parenchymal hematomas (PH).[27] PHs are stratified into those involving less than 30% of the ischemic territory with minimal mass effect (type 1; PH1) and those involving at least 30% of the ischemic territory with obvious mass effect (type 2; PH2).

Clinical Presentation

Any patient presenting with an acute-onset headache, seizure, and/or focal neurological deficit should be evaluated for possible IPH. Presentation may resemble an acute ischemic event with similar blood pressure lability or hypertension. The presence of a headache, nausea or vomiting, and a depressed mental state suggests hemorrhagic stroke as opposed to an acute ischemic event. In the original Surgical Trial in Intracerebral Haemorrhage (STICH) of 1033 patients with primary IPH, 60% of patients had arm paralysis, 50% had leg paralysis, and 59% had dysphasia or aphasia. Forty-one percent of patients had Glasgow Coma Scale (GCS) scores (range, 3-15; a higher score indicates a lower severity of brain injury) of 13 to 15, 40% had scores of 9 to 12, and 20% had scores of 5 to 8.[29]

Patients with cavernous malformations or venous sinus thrombosis are more prone to seizures than patients with other causes of IPH.[18-20,23] Patients with secondary IPH, particularly from vascular malformations or venous sinus thrombosis, are younger and generally do not have a history of hypertension. Recent dehydration, pregnancy, or known history of a hypercoagulable disorder may raise suspicion for venous sinus thrombosis.[23] In a 2012 study of IPH, significant risk factors for a secondary etiology were age younger than 65 years, female sex, nonsmoker, intraventricular hemorrhage, and no history of hypertension.[30]

Assessment and Diagnosis

Timely assessment and diagnosis of IPH are crucial; nearly 25% of patients with IPH deteriorate in transport to the hospital[31,32] and an additional 25% deteriorate in the emergency department (ED).[32,33] Risk factors for deterioration in the ED include use of antiplatelet agents, time from symptom onset to ED arrival under 3 hours, initial body temperature of at least 37.5°C, associated intraventricular hemorrhage, and midline shift of at least 2 mm.[33] Rapid computed tomographic scan or magnetic resonance imaging is a class I recommendation[34] to facilitate a timely diagnosis because patients with ischemic stroke are initially treated with permissive hypertension, thrombolytics, and emergent endovascular therapy, while patients with hemorrhage will need aggressive blood pressure control and consideration of surgical intervention to address elevated intracranial pressure, if present. The initial assessment should include obtaining a medical history, with emphasis on determining the time of symptom onset, determining if hypertension and anticoagulant use are present, and performing a neurological examination.

American Heart Association/American Stroke Association guidelines recommend calculation of a baseline severity score as part of the initial assessment (Table 2).[34] For general primary IPH, the Intracerebral Hemorrhage Score is simple to use and predicts mortality (Table 3).[35] The score is calculated from the patient's presenting GCS score, age, the presence or absence of infratentorial hemorrhage, IPH volume, and the presence of intraventricular hemorrhage. Computed tomographic angiography/venography can identify arteriovenous shunts, venous sinus thrombosis, and aneurysms. In addition, the presence of contrast extravasation on a computed tomographic angiogram, a "spot sign," is predictive of hematoma expansion. In a prospective observational study of 228 patients presenting within 6 hours of symptom onset with IPH, 27% had a spot sign.[36] Hematoma growth by 6 mL or 33% occurred in 61% of patients with a spot sign compared with 22% of patients without a spot sign ($P < .001$). Median hematoma expansion was 8.6 mL vs 0.4 mL ($P < .001$) for patients with and without spot signs, respectively, and 3-month outcomes, as defined by the modified Rankin scale (score range, 0-6; a higher score indicates a higher level of disability), (median of 5 vs 3, respectively; $P < .001$) and mortality (43% vs 20%, respectively; $P = .002$) were significantly worse for patients with a spot sign. Magnetic resonance imaging can be performed to better delineate a cavernous malformation, brain tumor, or ischemic stroke underlying the hemorrhage, and to identify microbleed patterns consistent with CAA or hypertensive microangiopathy (Table 1 and Figure 1). For patients suspected of having secondary IPH (no history of hypertension and/or age < 65 years), digital subtraction angiography remains the standard means for the diagnosis of arteriovenous shunts (AVM or dural arteriovenous fistulae) and aneurysms, and it can be of distinctive diagnostic value for moyamoya and vasculitis.

Treatment

American Heart Association/American Stroke Association guidelines for treatment of patients with IPH are summarized in Table 2.[34]

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Table 2. Summarized Clinical Practice Recommendations for the Management of Intraparenchymal Hemorrhage (IPH)[a]

	Classification[b]	Level of Evidence[c]
Initial diagnosis and assessment		
Baseline severity score should be performed	I	B
Rapid CT or MR imaging	I	A
More advanced imaging for underlying lesion (CT angiogram, CT venogram, MR, DSA)	IIa	B
Hemostasis and coagulopathy		
Repletion for coagulation factor deficiency or thrombocytopenia	I	C
If taking a VKA and INR is elevated, vitamin K should be administered	I	C
If taking a VKA and INR is elevated, PCC is recommended over FFP	IIb	B
Protamine sulfate to reverse heparin	IIb	C
rFVIIa is not recommended	III	A
Early medical management		
Initial management in ICU or dedicated stroke unit with nurses with nursing neuroscience acute care expertise	I	B
SBP <140 mm Hg, if presenting with SBP 150-220 mm Hg, is safe	I	A
Aggressive reduction of BP via continuous infusion if SBP >220 mm Hg	IIb	C
Monitor glucose; hyperglycemia and hypoglycemia should be avoided	I	C
Seizures should be managed with AED	I	A
Prophylactic AED is not recommended	III	B
Early, formal dysphagia screening before oral intake	I	B
Electrocardiogram and Tn for screening	IIa	C
Steroids are not recommended	III	B
Intermittent pneumatic compression for DVT prophylaxis on admission	I	A
SC heparin or LMWH 1-4 d after IPH ceases for DVT prophylaxis	IIb	B
Surgical management		
Ventricular drainage for hydrocephalus, especially if decreased arousal	IIa	B
Surgical drainage for worsening cerebellar IPH or hydrocephalus	I	B
Surgical drainage for clinical deterioration	IIb	C
Craniectomy for coma, large hematoma with shift or refractory high ICP	IIb	C

Abbreviations: AED, antiepileptic drug; BP, blood pressure; CT, computed tomographic; DSA, digital subtraction angiography; DVT, deep vein thrombosis; FFP, fresh frozen plasma; ICU, intensive care unit; ICP, intracranial pressure; INR, international normalized ratio; LMWH, low-molecular-weight heparin; MR, magnetic resonance; PCC, prothrombin complex concentrate; rFVIIa, recombinant factor VIIa; SBP, systolic blood pressure; SC, subcutaneous; Tn, troponin; VKA, vitamin K antagonist.

[a] Adapted from American Heart Association/American Stroke Association guidelines.[34]

[b] Classification recommendation of I indicates treatment should be performed; IIa, treatment is reasonable; IIb, treatment may be considered; III, no benefit or harm.

[c] Level of evidence of A indicates data from multiple randomized trials or meta-analysis; B, data from a single randomized trial or nonrandomized studies; C, data from consensus opinion/case studies.

Table 3. The Intracerebral Hemorrhage Score[a]

Factors	Points
GCS score	
3-4	2
5-12	1
13-15	0
Age, y	
≥ 80	1
< 80	0
Infratentorial hemorrhage	
Yes	1
No	0
Volume, mL	
≥30	1
< 30	0
Intraventricular hemorrhage	
Yes	1
No	0
Total score	**Risk of mortality, %**
0	0
1	13
2	26
3	72
4	97
5	100

Abbreviation: GCS, Glasgow Coma Scale.

[a] Adapted from data from Hemphill et al.[35]

As with any patient presenting with an acute neurological event, airway protection is crucial in unresponsive patients to mitigate the risk of secondary injury from aspiration, hypoxemia, and hypercapnia. Patients with impending herniation can receive ventilation after intubation and be given mannitol to lower intracranial pressure.

Hemostasis and Coagulopathy

Patients with coagulopathy secondary to a coagulation factor deficiency or severe thrombocytopenia should receive factor replacement therapy or platelets, respectively; patients with a high international normalized ratio due to vitamin K antagonist therapy should receive intravenous vitamin K and prothrombin complex concentrate (Class IIb; level of evidence: B).[34,37] Complex concentrates are preferred over fresh frozen plasma because they are more easily reversed, less likely to cause fluid overload, and have comparable thromboembolic complication rates.[37] In one study, the frequency of hematoma growth was 19% in patients treated with prothrombin complex concentrate compared with 33% in patients treated with fresh frozen plasma.[38] Direct thrombin inhibitors can be reversed by administering idarucizumab for dabigatran[39] and andexanet alfa for apixaban, rivaroxaban, or other factor Xa inhibitors.[40] In a study of 67 patients with acute, major bleeding, andexanet alfa administration resulted in median factor Xa activity reduction of 89% and 93% for rivaroxaban and apixaban, respectively.[40]

Empirical recombinant factor VIIa administration is not recommended for patients with IPH.[34] In the Factor Seven for Acute Hemorrhagic Stroke Trial (FAST), 841 patients with primary IPH were randomized to receive a placebo, 20 µg/kg of recombinant factor VIIa, or 80 µg/kg of recombinant factor VIIa within 4 hours of IPH onset.[41]

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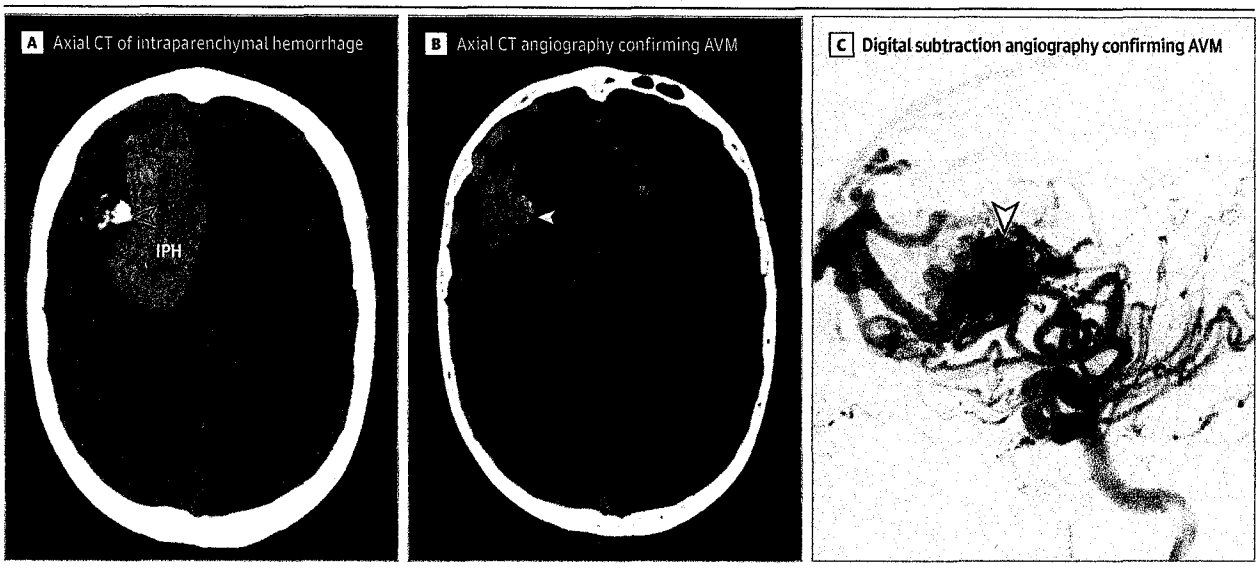
Figure 1. Secondary Intraparenchymal Hemorrhage (IPH)



Panel A demonstrates a right frontal IPH with an adjacent calcified lesion (arrowhead) and panels B and C show an arteriovenous malformation (AVM; arrowhead). CT indicates computed tomographic.

The primary outcome, defined as severe disability or death (modified Rankin Scale score of 5 or 6), did not significantly differ between groups (24% in the placebo group, 26% in the 20-µg/kg group, and 30% in the 80-µg/kg group). The mean increase in volume of IPH at 24 hours was 26% in the placebo group, 18% in the 20-µg/kg group ($P = .09$), and 11% in the 80-µg/kg group ($P < .001$); however, rates of arterial adverse events were more frequent in the 80-µg/kg group than the placebo group (9% vs 4%; $P = .04$). Empirical tranexamic acid administration is also not recommended for patients with IPH. A 2018 randomized trial of 2325 patients with IPH randomized to receive tranexamic acid or a placebo reported no significant difference in outcomes or mortality at 90 days; however, there was a lower incidence of serious adverse events in the cohort who received tranexamic acid.[42]

Patients taking antiplatelet medications should not undergo attempted reversal by platelet transfusion. The 2016 PATCH trial randomized 190 patients with IPH receiving antiplatelet therapy to receive either platelet transfusion or no transfusion and demonstrated a greater risk of death or functional dependence at 3 months in patients who underwent transfusion (OR, 2.05 [95% CI, 1.18-3.56]), with a greater risk of serious adverse events during hospitalization (42% vs 29%), than patients who did not undergo transfusion.[43]

Early Medical Management

Hematoma growth is independently associated with worse outcomes and occurs in at least 30% to 38% of cases of IPH.[44-46] To mitigate the risk of secondary brain injury resulting from hematoma expansion, optimal systolic blood pressure goals have been addressed in 2 trials. For patients presenting with systolic blood pressure up to 220 mm Hg, blood pressure should be reduced to less than 140 mm Hg using parenteral medications, such as nicardipine or clevidipine.[34] In the ATACH-2 trial, 1000 patients presenting for care within 4.5 hours of symptom onset with supratentorial IPH were randomized to a systolic blood pressure target of 110 mm Hg to 139 mm Hg (intensive) or 140 to 179 mm Hg (standard) for 24 hours.[47] There was no significant difference in 90-day mortality or severe disability between the groups (modified Rankin Scale score of 4-6 in 38.7% vs 37.7% of patients, respectively). The rate of hematoma expansion was 18.9% in the intensive blood pressure control cohort compared with 24.4% in the standard blood pressure cohort ($P = .09$); however, the rate of renal adverse events was higher in the intensive group (9% vs 4%; $P < .001$).

The INTERACT2 trial randomized 2783 patients with IPH within 6 hours of symptom onset to the same blood pressure goals as in the ATACH-2 trial, maintained for a 7-day period.[48] The rate of poor outcomes (modified Rankin Scale score of 3-6) at 3 months was 52% in patients in the intensive blood pressure treatment group compared with 55.6% in the standard blood pressure group ($P = .06$). Secondary analyses demonstrated better physical and mental health–related quality of life for patients in the intensive group. Careful review of the ATACH-2 trial, however, demonstrated that the mean minimum systolic blood pressure during the first 2 hours was 128.9 in the intensive blood pressure group and 141.1 mm Hg in the standard blood pressure group; in the INTERACT2 trial, mean systolic blood pressure in the first hour was 150 mm Hg in the intensive blood pressure group vs 164 mm Hg in the standard blood pressure group.

Optimally, patients should be admitted to an intensive care unit or dedicated stroke unit.[34,49] In a study comparing 8206 patients with IPH treated in a stroke unit with 2871 patients in a standard hospital ward, the rate of death or functional dependency at 3 months was significantly lower for patients in a stroke unit (59% vs 75%; OR, 0.59 [95% CI, 0.53-0.67]).[49]

Routine prophylactic antiepileptic medications are not recommended and may be associated with worse outcomes for patients with IPH,[50,51] but patients presenting with seizures should be treated with antiepileptic medications. Hyper- and hypoglycemia should be managed and early dysphagia screening and cardiac screening using electrocardiogram results and troponin levels should be performed.[34] Deep vein thrombosis prophylaxis with intermittent pneumatic compression should be administered[52]; subcutaneous

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or low-molecular-weight heparin can be started the day after the cessation/stabilization of the bleed.[34,53]

Neurosurgical Management of IPH

Urgent neurosurgical consultation is recommended for assessment for hydrocephalus and the possible need for surgical decompression or hematoma evacuation. In patients with supratentorial IPH and obvious radiographic hydrocephalus and/or decreased level of consciousness, an external ventricular drain is advised.[34] In a large trial of patients with supratentorial IPH, 23% of patients with primary IPH and 55% of patients with associated intraventricular hemorrhage had hydrocephalus.[29,54]

A common strategy supported by small population studies is to proceed with surgical decompression and evacuation of cerebellar hemorrhage at least 3 cm in size.[55,56] There is less certainty about the efficacy of evacuation for supratentorial IPH, though patients with sizable hematomas, clinical deterioration, or coma should be considered for craniectomy and/or clot evacuation.[34,57,58] In the original STICH, 1033 patients from 83 centers with primary supratentorial IPH were randomized to receive early surgical or initial conservative management.[29] Favorable outcome, defined as good recovery or moderate disability on the Glasgow outcome scale, did not significantly differ between the groups (26% in the surgical management group vs 24% in the conservative management group; $P = .41$). In the STICH II trial, 601 conscious (GCS>8) patients with 10- to 100-mL superficial, supratentorial IPH without intraventricular hemorrhage were randomized to undergo surgical hematoma evacuation or conservative management.[59] However, a statistically significant difference in favorable outcome at 6 months between the groups was not observed (41% in the surgical management group vs 38% in the conservative management group; $P = .37$).

As a means to reduce the morbidity of open surgical approaches, minimally invasive approaches are being investigated. These approaches use small incisions and bony openings (burr hole), and insert either a catheter into the clot for drainage or a small tube into the clot for direct evacuation. Zhou et al found a significantly lower rate of death or dependence (modified Rankin Scale score >2) with minimally invasive surgery compared with craniotomy or conservative management in a meta-analysis of patients with supratentorial IPH.[60] The benefits of minimally invasive surgery were achieved in patients younger than 80 years who had superficial bleeds, a GCS score of at least 9, hematoma volume between 25 mL and 40 mL, and underwent the surgical procedure within 72 hours of symptom onset. A 2018 meta-analysis of 5 randomized trials and 9 prospective studies involving 2466 patients with supratentorial IPH found a statistically significant difference in mortality rate between patients who underwent minimally invasive surgery and craniotomy (OR, 0.76 [95% CI, 0.60-0.97]) and a lower rate of rebleeding (OR, 0.42 [95% CI, 0.28-0.64]) and a higher rate of good recovery (OR, 2.27 [95% CI, 1.34-3.83]) for minimally invasive approaches.[61]

Ongoing Minimally Invasive Surgery Studies for Primary IPH

In the Minimally Invasive Surgery Plus rt-PA in Intracerebral Hemorrhage Evacuation (MISTIE) II trial, 54 patients with IPH were randomized to undergo stereotactic placement of a catheter into the hematoma and administration of recombinant tissue plasminogen activator and 42 were randomized to receive routine medical care.[62] The authors found similar rates of 30-day mortality (9.5% vs 14.8%; $P = .54$), 7-day mortality (0% vs 1.9%; $P = .56$), symptomatic hemorrhage (2.4% vs 9.3%; $P = .23$), and infection (2.4% vs 0%; $P = .43$) in the routine care vs the surgical care group. The MISTIE III trial will compare functional outcome between the 2 groups at 180 days, as defined by the modified Rankin Scale. Innovative approaches for catheter insertion are ongoing, with recent reports of robot-assisted catheter insertion (Figure 2).[63]

The ongoing multicenter ENRICH (NCT02880878) study randomized patients aged 18 to 80 years with a GCS score of 5 to 14 and an IPH volume of 30 mL to 80 mL to receive surgical evacuation via an endoport or routine medical care within 24 hours. The primary outcome is functional improvement on the utility-weighted modified Rankin Scale score at 180 days. An initial single-arm surgical evaluation of this endoport system in 39 patients with primary IPH reported functional independence in 52% of patients at follow-up and no mortality.[64]

Secondary IPH

While the early treatment of patients with secondary IPH remains consistent with primary IPH, medically and in terms of managing early hydrocephalus, diagnosing and addressing the etiologic cause of the IPH is important. Given their increased risk of repeat hemorrhage after a bleed, surgically accessible ruptured AVMs should be excised with or without adjunctive embolization.[15] The Spetzler Martin grading scale is used to stratify surgical risk based on AVM size (<3 cm, 1 point; 3-6 cm, 2 points; >6 cm, 3 points), presence of deep venous drainage (+ 1 point), and eloquent locale (+ 1 point).[65] Grade 1 to 2 AVMs are generally considered reasonable surgical targets; grade 3 AVMs are of intermediate surgical risk, and grade 4 to 5 AVMs are associated with higher surgical morbidity.[15,65] Surgically inaccessible or high-risk ruptured AVMs should be considered for radiosurgery (focused radiation)[66]; rarely, small ruptured AVMs can be managed with embolization, though embolization is generally viewed as an adjunctive measure.[67] Recent advances in transvenous embolization may ultimately broaden the spectrum of AVMs amenable to endovascular therapy with curative intent.[68]

Ruptured dural arteriovenous fistulae are generally managed via embolization as first-line curative therapy; open neurosurgical resection is reserved for fistulae that cannot be effectively embolized.[69] A 2017 study of 260 patients with dural arteriovenous fistulae treated via embolization reported an 80% occlusion rate with an overall 8% complication rate.[69] Hemorrhagic cavernous malformations are surgically excised if accessible.[18] Modern advances in advanced imaging, such as tractography, and improving neurosurgical approaches continue to reduce operative risk.[18,70-72] Ruptured aneurysms that cause isolated IPH are often atypical, distal mycotic aneurysms that are generally managed with embolization.[24] Patients with venous sinus thrombosis and associated hemorrhage should be considered for transvenous thrombectomy, or, with stability of small hemorrhages, anticoagulation may be used.[23] A systematic review of 17 studies with a total of 235 patients undergoing transvenous thrombectomy reported radiographic resolution in 69% of patients; worsening or new intracranial hemorrhage was reported in 8.7% of cases.[73] Anticoagulation is thought to reduce rather than elevate IPH risk by averting thrombus propagation and exacerbation of venous hypertension and requires close monitoring to avoid worsening hemorrhage. Patients with vasculitis are often treated medically once a diagnosis is achieved; patients with moyamoya vasculopathy may

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be considered for surgical revascularization.[25,74] Hemorrhagic neoplastic lesions may be surgically excised as indicated once the patient is stabilized.

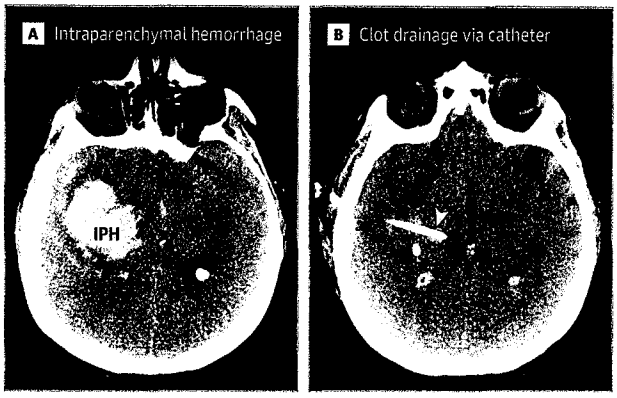
Recovery

Patients recovering from IPH are optimally treated in specialized neurorehabilitation facilities.[34] Control of hypertension, alcohol intake, and smoking cessation should be pursued, given their effect on IPH risk.[2,8] For patients needing antiplatelet therapy, it can be resumed within days after primary IPH,[34] while resumption of anticoagulation therapy should be delayed by 1 to 2 months, particularly for patients with deep, non–CAA-related primary IPH. A 2017 meta-analysis regarding resumption of anticoagulation therapy after IPH showed that resuming anticoagulation therapy is associated with a significantly lower risk of thromboembolic complications (risk ratio, 0.34 [95% CI, 0.25-0.45]), but a comparable risk of recurrent IPH (risk ratio, 1.01 [95% CI, 0.58-1.77]).[75] A study that evaluated optimal timing for resumption of anticoagulation therapy demonstrated that the combined risk of recurrent stroke or IPH reached a nadir if anticoagulation therapy was restarted between 10 and 30 weeks after the initial hemorrhage.[76] Nevertheless, patients at higher risk for recurrent IPH, such as patients with lobar and/or CAA-related IPH, should be evaluated on an individual basis. A Markov decision model demonstrated that withholding anticoagulation in a case of a 69-year-old man with nonvalvular atrial fibrillation resulted in improving quality-adjusted life expectancy by 1.9 quality-adjusted life-years.[77] In patients with secondary IPH from a vascular malformation, mycotic aneurysm, vasculitis, or brain tumor, anticoagulation therapy can often be initiated after therapeutic cure of the etiologic lesion.

Limitations

This review is limited by its inclusion of predominantly observational studies supporting management options for both primary, and particularly secondary, IPH etiologies. Given the rarity of vascular malformations, moyamoya, and most etiologic causes of secondary IPH, it will be difficult to obtain substantial high-quality evidence to guide the management of these conditions. Even rarer secondary IPH causes, such as reversible cerebral vasoconstriction syndrome, cerebral proliferative angiopathy, and encephalitides, were not specifically addressed in this review.

Figure 2. Robot-Assisted Catheter Insertion for Minimally Invasive Intraparenchymal Hemorrhage (IPH) Evacuation



A noncontrast, axial computed tomographic image showing a 60-mL spontaneous IPH (panel A) managed via robot-assisted insertion of a catheter (panel B, arrowhead) for administration of tissue plasminogen activator with resultant significant drainage of the clot.

Conclusions

IPH remains a considerable source of neurological morbidity and mortality. Rapid identification, medical management, and neurosurgical management, when indicated, is essential to facilitate recovery. There is ongoing evaluation of minimally invasive approaches for evacuation of primary IPH and evolution of surgical and endovascular techniques in the management of lesions leading to secondary IPH.

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Drafting of the manuscript: Gross.
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Submissions: We encourage authors to submit papers for consideration as a Review. Please contact Edward Livingston, MD, at Edward.livingston@jamanetwork.org or Mary McGrae McDermott, MD, at mdm608@northwestern.edu.

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